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The President's Column

Morris H. Hansen

The Annual Meeting at Stanford University in August drew a large attendance, considerably larger than some of us expected. The total number of registrants (including members of all societies meeting jointly) reached 1,227. This was a larger figure than some of our recent meetings held nearer the Association's membership population center. In addition to the attraction of an excellent program and inexpensive accommodations on the campus, there may be other reasons for this larger turnout: the increasing number of members in the west, the absence of conflicts with other meetings at this time of the year, and the advantage of combining a convention trip with a vacation.

Those who attended the meeting know first-hand of the excellent local arrangements under the guidance of Dean Bowker and his Committee and by members of his staff at Stanford. The University was also the host at an evening of music held in the University auditorium, which was filled by registrants and members of their families. Both this special occasion and the traditional informal party provided an opportunity for relaxation and the renewal of acquaintances.

All of you who saw the preliminary program in the June issue of THE AMERICAN STATISTICIAN know of the variety of sessions organized by the Program Committee, headed by Phil Hauser. The Sections' representatives can be proud of their programs. Incidentally, the 1960 Proceedings of both the Business and Economic Statistics Section and the Social Statistics Section are already in preparation. We hope to have them printed and ready for distribution with a minimum of delay. During the convention the first meeting of the 1961 Program Committee was held and members who wish to make suggestions may do so as usual through Section representatives on the Committee or directly with the 1961 Chairman, George Hitchings, American Airlines in New York, where the 1961 meetings will be held.

Speaking of publications, the final report of the Publications Policy Committee was submitted at the Board and Council meeting held at Stanford the day before the meetings began. (Mr. Barbour, the News Editor, reports on the Board and Council meeting in the news columns of this issue.) Almarin Phillips, Chairman of this Com-

(Continued on inside back cover)

NEWS

NOMINATION OF DISTRICT REPRESENTATIVES TO COUNCIL—CONFERENCE OF SOCIETIES CONCERNED WITH STATISTICS—SUMMARIES OF 1960 ANNUAL MEETING AND BOARD AND COUNCIL MEETING AT STANFORD—STATISTICS COURSE ON T.V.—NEW FELLOWSHIPS AND GRANTS—PUBLICATIONS

Nomination of District Representatives For the Two Year Term 1961-62

The following persons have been nominated by the local chapters for District Representative to the Council of ASA for the two-year term 1961-62. One is to be elected from each district. The list of nominees for the other ASA offices was published in the June issue of THE AMERICAN STATISTICIAN. Ballots will be mailed to members before November 15.

District

1 R. J. D. GILLIES, New Haven
GOTTFRIED E. NOETHER, Boston

2 MAX WEINSTEIN, Albany, N. Y.

3 NATHAN MORRISON, New York City
SAMUEL SHAPIRO, New York City

4 HERBERT GINSBURG, Pittsburgh
KENNETH W. MASTERS, Harrisburg
HYMAN MENDUKE, Philadelphia
DONALD C. STEELE, Harrisburg

5 ERNEST RUBIN, Washington, D. C.
HOWARD STIER, Washington, D. C.

6 JAMES S. GRIZZLE, Chapel Hill, N. C.

7 JOSEPH W. LARSON, Detroit
FRED C. LEONE, Cleveland
HARRY SHARP, Ann Arbor, Michigan
HARRY SMITH, Cincinnati

8 ROBERT J. BUEHLER, Ames, Iowa
NORMAN KAYE, Milwaukee
DONALD E. PAUL, St. Louis
MONROE O. WOOD, Tulsa

9 EDWARD C. BRYANT, Laramie, Wyoming
BERNARD HARRIS, Lincoln, Nebraska
PAUL MINTON, Dallas

10 JOHN FREUND, Tempe, Arizona
JOHN A. SCOTT, Los Angeles
CARL FRISEN, Sacramento

Conference of Societies Concerned with Statistics

A meeting of representatives of several societies concerned with statistics was held September 16-18 at the Onchiota Conference Center near Tuxedo Park, New York. The purpose of the meeting was to consider closer relations among these societies and the possibility of establishing some sort of federation or conference board type of arrangement.

The meeting grew out of talks which Rensis Likert, the President of the American Statistical Association, began last year with leaders of other statistical societies about the need for greater cooperation among them. The results of these talks were encouraging, and a grant was obtained from the Rockefeller Foundation to assist in arranging a conference. President Hansen appointed an ASA Committee on the Relationships Among Statistical Societies (abbreviation CONTRASTS), and the Institute of Mathematical Statistics and the Biometric Society (ENAR) agreed to act as co-sponsors. Active interest was expressed by several other societies and arrangements were made for a joint three-day session. Representatives of the American Institute of Biological Sciences and the Conference Board of the Mathematical Sciences who had participated in somewhat similar joint meetings for their societies accepted an invitation to act as consultants.

The participants at the Onchiota meeting were:

A. CHARNES, The Institute of Management Sciences
Research Professor of Applied Mathematics and Economics
The Technological Institute
Northwestern University

WALTER T. FEDERER, President, Biometric Society (ENAR)
Professor of Biological Statistics
Cornell University

WALLACE O. FENN, Past President, American Institute of Biological Sciences
Professor of Physiology
School of Medicine and Dentistry
University of Rochester

C. E. FISHER, Past President, American Society for Quality Control
Central Office Quality Engineer
Bell Telephone Laboratories

JOSEPH FLANAGAN, The Institute of Management Sciences
Manager, Scientific Systems
IBM Corporation

JOHN W. FRENCH, Treasurer, Psychometric Society
Head, Educational Research Corporation
Educational Testing Service

MARTIN A. GAINSBRUGH, President Elect, American Statistical Association
Chief Economist
National Industrial Conference Board

MORRIS H. HANSEN, President, American Statistical Association
Assistant Director for Statistical Standards
U. S. Bureau of the Census

BOYD HARSHBARGER, Biometric Society (ENAR)
Head, Department of Statistics
Virginia Polytechnic Institute

ROBERT J. JOHANSEN, Society of Actuaries
Assistant Actuary
Metropolitan Life Insurance Co.

R. BOYD LADD, Operations Research Society of America
Operations Research Office
Johns Hopkins University

J. Y. MCCLURE, President, American Society for Quality Control
Convair Division of General Dynamics

FREDERICK MOSTELLER, American Statistical Association
Department of Statistics
Harvard University

THORNTON PAGE, Vice President, Operations Research Society of America
Professor of Astronomy
Wesleyan University

G. BALEY PRICE, Executive Secretary, Conference Board of the Mathematical Sciences

DONALD C. RILEY, Executive Director, American Statistical Association

MARY E. ROBINSON, The Brookings Institution

NANCY RUGGLES, Treasurer, Econometric Society
Yale University

HENRY SCHEFFE, Institute of Mathematical Statistics
Department of Statistics
University of California

WILLIAM F. TAYLOR, President, Biometric Society (WNAR)
Associate Professor of Biostatistics
School of Public Health
University of California
JAMES TOBIN, Econometric Society
Professor of Economics
Yale University
SAMUEL S. WILKS, Past President, Institute of Mathematical Statistics
Department of Mathematics
Princeton University
W. P. YOUNGCLAUS, JR., Administrative Secretary, American Society for Quality Control

A motion was passed on the last day of the conference "that a federation of societies concerned with statistics should be organized for some or all of the purposes listed below, and possibly others to be developed, using the present facilities of the American Statistical Association without duplication insofar as possible." The proposed list of purposes includes:

1. Publicity, i.e., pooling the public relations of the group as a whole
2. Publication redactory (cooperation)
3. Bulletin
4. Newsletter
5. Exchanging subscriptions to journals, i.e., joint subscriptions
6. Abstracts
7. Translations
8. Directors
9. Placement and registry (National Roster)
10. Recruitment
11. Symposia and meetings
12. Visiting lecture programs (summer institutes and sessions and conferences)
13. Joint studies
    a. curriculum
    b. communication
    c. interdisciplinary
14. Films and T.V.
15. Washington Office
    a. services
    b. Government Information
    c. bills pending
    d. advice re grants
16. Source of nominations for national committees and research programs
17. Program of Fellowships at national levels (e.g., NSF)
18. Cooperative apprentice training programs
19. International cooperation

There was agreement that the proposed federation would not undertake any lobbying or any usurpation of the functions of the participating societies (though this would not preclude these societies from requesting services). It was further agreed that there was to be no personal membership society.

A committee consisting of Frederick Mosteller—ASA, Walter T. Federer—Biometric Society, Samuel Wilks—Institute of Mathematical Statistics, Thornton Page—all other societies represented, and Donald C. Riley—ex-officio, was appointed to prepare a draft of the structure and functions of such a new organization and to circulate it to persons attending the meeting. This committee is also to make arrangements for a further meeting.

1960 Annual Meeting at Stanford

The 120th Annual Meeting of the American Statistical Association, held August 23-26 on the campus of Stanford University, Palo Alto, California, was an outstanding success. The total number of registrants was 1,227, which includes registration for the other societies meeting jointly with ASA—the Biometric Society, ENAR and WNAR; the Econometric Society; the Institute of Mathematical Statistics; the Western Economic Association and the Western Farm Economics Association. This number was substantially larger than had been expected in view of the fact that a large majority of the members live east of the Mississippi River. The California summer weather was at its best. The Economic Outlook luncheon, at which Jesse Tapp, President of the Bank of America, spoke, was held outdoors in a grove of live-oak trees. Stanford University proved a fine host. The University presented an enjoyable musical session to a well-filled auditorium on Wednesday evening.

A total of 140 sessions was held by all the participating societies, of which 25 were nontechnical. The Presidential Address, which dealt with the important subject of cooperation among statistical societies, was delivered by Morris Hansen at the General Session on Thursday evening. It will be published in the March issue of the ASA *Journal*. The list of newly-elected Fellows, announced at this session, appears elsewhere in this issue of *The American Statistician*. The General Session was followed by an informal party held off the campus at Rickey's Motel.

Copies of the booklet containing the abstracts of the papers presented at the Annual Meeting are still available from the ASA National Office at $1.00 per copy. In addition papers presented at the sessions sponsored by the Business and Economic Statistics Section and the Social Statistics Section will appear in the 1960 *Proceedings* to be published by each of the Sections. It should be noted that publication in the *Proceedings* does not preclude the authors from submitting their papers for publication in the *Journal*, *The American Statistician*, *Technometrics* or other periodicals.

The next annual meeting of the Association will not be until December 27-30, 1961. It will be held at the Hotel Roosevelt in New York City in conjunction with the American Economic Association, the American Marketing Association and other societies.

August Board and Council Meeting

The Board of Directors and Council of the American Statistical Association met on August 22 in conjunction with the 1960 ASA convention at Stanford University, California. Those present included President Morris H. Hansen; Past President Rensis Likert; President-Elect Martin Gainsbrugh; Vice-President Howard L. Jones; Secretary-Treasurer Donald C. Riley; Directors A. H.

Bowker, Raymond T. Bowman, Harold F. Dorn and Oscar Kempthorne; most of the members of the Council and several guests.

Two new Chapters were voted charters. These are Arizona and Harrisburg, Pennsylvania.

Frederick F. Stephan, Chairman of the Social Statistics Section, announced that Edwin Goldfield will be the editor of the 1960 edition of the *Proceedings* of the Social Statistics Section, publication of which had previously been voted by the Board. Professor Stephan then raised the question of permanent authorization for yearly publication of a Social Statistics *Proceedings* volume, following future annual meetings. A motion that annual publication be approved was carried.

J. Stuart Hunter, Editor of *Technometrics*, sponsored by ASA and ASQC, reported briefly on the magazine. The 1960 volume will contain 35 technical papers. Professor Hunter has been trying to publish groups of papers on the same topic, together with discussion, in the same issue. Regarding the finances of the magazine, he reported that there might be a small surplus at the end of the year, depending largely on the number of additional subscriptions obtained. There are now about 2200 subscriptions.

Almarin Phillips, Chairman of the Committee on Publications Policy, covered briefly the points made in the final report of that committee. There was some discussion of the proposal that the sectional Liaison Editors of the *Journal* be discontinued. Clifford G. Hildreth, Editor of the *Journal*, noted that so far manuscripts have not come through these editors, and felt that to make the arrangement effective a very substantial effort would be necessary. A motion to discontinue the arrangement of Liaison Editors was adopted, with the proviso that this action is in no way to be construed as discouraging the Sections from taking an active interest in the publications program of the Association. The suggestion was made that perhaps the place for Sections to have representation would be on the permanent Publications Committee. It was noted that more good review articles were needed for both the *Journal* and *The American Statistician*. A motion to accept the report as presented, with a warm note of thanks to the Committee on Publication Policies, was carried.

Philip M. Hauser, Chairman of the 1960 Program Committee, and Martin Taitel reported on the program as finally developed for the Stanford meeting. Dr. Hauser noted that the Sections, which are represented on the Program Committee, had developed most of the sessions in accordance with their quotas. Albert H. Bowker, Dean of the Graduate Division of Stanford and Chairman of the Local Arrangements Committee, reported on the activities and plans of that committee. Both reports were accepted with thanks for a job well done.

Michael Amrine, who has been retained to write the report on "Statistics as a Career," jointly sponsored by the American Statistical Association and the Institute of Mathematical Statistics, reported that he expects a final draft to be distributed to the supervising committees about mid-October. Mr. Amrine, who also serves as the Association's Public Relations Director, described briefly arrangements for coverage of the 1960 annual meeting in the press.

William G. Madow, Chairman of the Technical Committee on Broadcast Ratings, reported that the committee has completed preliminary work and expects to begin making visits both to the rating services and users after Labor Day.

There was considerable discussion of the election of Fellows of the Association, led by Churchill Eisenhart, Chairman of this year's Committee on Fellows. Dr. Eisenhart reported that one of the Fellows nominated this year had declined the honor on the ground that he disagrees with the system used by ASA as well as by other associations. The value of fellowships was discussed as well as possible changes in the method of selection. President Hansen indicated he would probably appoint a committee to study the matter.

The president reported that a conference of societies in the field of statistics would be held September 16-18 at the Onchiota Conference Center near Tuxedo, N. Y. The purpose of the meeting is to discuss the possibilities of joint arrangements. (See news note elsewhere in this issue.)

The proposal for a Statistics Section in the American Association for the Advancement of Science was discussed. The Board and Council adopted a motion requesting AAAS to establish such a section.

President Hansen reported that earlier this year he had appointed the following new committees—Committee on Statistics in Meteorology (Herbert Thom, Chairman), Committee on Statistics in Accounting (Frederick Stephan, Chairman), and Committee on Visual Aids in Statistics (Grant Butterbaugh, Chairman). Recently a new committee was appointed on Statistics in Marketing, with Solomon Dutka as Chairman. Two other possible subjects—computers in statistics and operations research—are under consideration.

Mr. Riley requested authorization for the publication of a 1961 Directory of members and this was voted by the Board and Council.

Mr. Riley introduced the report of the Committee on International Conference Travel Grants. He noted that 1960 was the last of the three years for which a total of $9,000 had been received from the Carnegie Corporation, and asked whether an effort should be made to obtain a further grant, as recommended by the Committee. The Board and Council voted that the Association should seek another grant of equal amount or more for the next three years, and expressed appreciation to the Committee for its work.

An income and expense statement for the Association was presented through June 30, as well as the preliminary estimate for the 1961 budget which shows a slight increase over that for 1960. Mr. Riley pointed out that the Association is doing more than it ever has before, due not only to growth in membership but also to the high level of activities. Mr. Engquist, who was Chairman of the 1959 Local Arrangements Committee, recommended that the registration fee for annual meetings be increased to $5,

which would be more in line with the fees charged by other associations and would cover more adequately the costs of these meetings. No action was taken by the Board and Council.

Mr. Gainsbrugh noted that Mr. Riley's five-year term as Executive Director would expire soon. The Council voted unanimously to extend the term for another five years.

Resolutions Adopted at Annual Meeting

The following resolutions, which had been prepared by the Committee on Resolutions, headed by Oscar Kempthorne, were adopted at the 1960 Annual Meeting at Stanford.

1. Resolution of Appreciation to the Local Arrangements Committee

Resolved that the members of the American Statistical Association express their appreciation to Dean A. H. Bowker for his great contribution as Chairman of the Local Arrangements Committee for the 1960 Annual Meeting of the Association. The Association also acknowledges with appreciation the large amount of work done by other members of the Local Arrangements Committee. This is the Association's first convention on a campus and it has been an outstanding success.

2. Resolution of Appreciation to Stanford University

Resolved that the members of the American Statistical Association express their gratitude to Stanford University for the hospitality extended to the Association, and for the excellence of all the facilities made available for the 1960 Annual Meeting of the Association. The special entertainment it has arranged as well as its facilities have been superb.

3. Resolution of Commendation for the Program of the Meeting

Resolved that the members of the American Statistical Association record their especial thanks to Dr. Philip M. Hauser as Chairman of the Program Committee, to his assistant, Martin Taitel, and to the members of the Program Committee for the formulation and execution of an excellent program despite the very brief time it has had to do the job. The Association also extends thanks to the participants and the many representatives of Sections and participating societies who have made possible one of our finest meetings.

TV Courses in Probability and Statistics

"Probability and Statistics," together with "The Teaching of Probability and Statistics," will be offered during the second semester of the Continental Classroom 1960-61 course in Contemporary Mathematics. "Probability and Statistics" will be given on Mondays, Wednesdays and Fridays by Professor Frederick Mosteller, Chairman of the Department of Statistics of Harvard University. Concurrently, "The Teaching of Probability and Statistics" will be presented on Tuesdays and Thursdays by Professor Paul C. Clifford of Montclair (N. J.) State College. (The first semester course, beginning September 26, is "Modern Algebra.")

This series, to begin Monday, January 30, will be telecast over 160 NBC stations located near the 250 colleges and universities that offer credit for the Continental Classroom course—6:30 a.m. to 7 a.m. in each time zone.

Prerequisites are two years of high school mathematics and the first semester Continental Classroom "Modern Algebra" or three years of high school mathematics including algebra and geometry. Calculus is not a prerequisite.

Sponsors of Continental Classroom include the Conference Board of the Mathematical Sciences, Learning Resources Institute and the National Broadcasting Company. Financial backing is provided by The Ford Foundation and seven leading industries: Bell Telephone System, E. I. duPont de Nemours & Co., General Foods Fund, IBM Corporation, Radio Corporation of America, Union Carbide Corporation, and United States Steel.

For further information, correspondence may be directed to

National Coordinator
Continental Classroom
Learning Resources Institute
680 Fifth Avenue
New York 19, New York

AIBS Translation Program

The American Institute of Biological Sciences is currently translating and publishing seven Russian research journals in biology, with support from the National Science Foundation. It is hoped that this material will aid biologists in research, prevent duplication of work, give some idea of the work being done by Soviet scientists in the field of biology, and also bring about a better international understanding among scientists.

The journals currently being translated are: Doklady: Biological Sciences Section; Doklady: Botanical Sciences Section; Doklady: Biochemistry Section; Plant Physiology; Microbiology; Soviet Soil Science; and Entomological Review.

In addition to its program of Russian Biological Journal translations, the AIBS has instituted a separate program of translation and publication of selected Russian Monographs in biology.

Additional information pertaining to this program may be obtained by writing to the American Institute of Biological Sciences, 2000 P Street, N.W., Washington 6, D. C., U. S. A.

Social Science Research Council Fellowships and Grants

The Social Science Research Council's program of fellowships and grants will be continued in 1960-61 without major change. Predoctoral and postdoctoral Research Training Fellowships will be offered to persons who have demonstrated unusual aptitude for research and who are judged likely to make significant contributions in their subsequent careers. Applications for these fellowships will be due on or before December 1, 1960.

Faculty Research Fellowships are offered to social

scientists who will take leave from other duties for at least six months in order to carry out programs of independent research. These awards will be made to mature scholars without any age limitation who have demonstrated their capacity for effective research. Stipends may not exceed $6,000 for one year or $12,000 for two years. It is expected that wherever possible the appointee will receive some support from his own institution. Grants-in-Aid of Research are offered to social scientists whose plans for carrying on research do not include prolonged leave of absence from regular duties. Such grants may not exceed $2,000. Applications for Faculty Research Fellowships and Grants-in-Aid of Research will be due by November 1, 1960 for awards to be announced on or before January 3, 1961, and by February 1, 1961 for awards to be announced on or before April 1.

Six special programs of grants for research in foreign areas are available to scholars of postdoctoral status. These programs are African Studies, Asian Studies, Studies of Contemporary China, Latin American Studies, Near and Middle Eastern Studies, and Slavic and East European Studies. Grants may range from small sums up to amounts sufficient to meet the costs of a full year's research. Applications are due November 1, 1960, except for the Asian Studies and Slavic and East European Studies. In the case of these programs, which are being administered by the American Council of Learned Societies (345 East 46th Street, New York 17) applications should be submitted to that organization by December 12.

Travel grants for attendance at international conferences will again be awarded to scholars residing in the United States. Among the conferences for which grants have already been authorized are the International Statistical Institute to be held in Paris August 28 to September 7, 1961, and the International Conference on Input-Output Techniques at Geneva, August 1961. Applications should be filed not later than December 1, 1960.

Prospective applicants for these fellowships and grants should obtain the necessary application forms and detailed instructions from the Council well in advance of the closing dates. In requesting these it is essential to state age, place of permanent residence, present position or activity, degrees held and degree, if any, currently sought, the general nature of the proposed training or research, and the duration or amount of support desired. Communications should be addressed to Social Science Research Council Fellowships and Grants, 230 Park Avenue, New York 17, N. Y.

Fellowships in Demography: 1961-1962

The Population Council is offering about 25 fellowships for study in population at the predoctoral and postdoctoral levels. These fellowships are available to qualified students from all countries; particular consideration is given to students from the economically underdeveloped areas. Applicants should have completed at least one year of graduate study beyond the college level, and have sufficient training in the social sciences to do graduate work in demography. The plan of study and choice of university are made by the applicant. These fellowships are for training in demography although related study in sociology, economics, biostatistics and other relevant fields may form part of a total program.

The basic stipend is $2700 for twelve months which may be supplemented to provide for tuition, travel, maintenance of dependents and other expenses. The deadline for receipt of completed applications for the 1961-1962 academic year is February 1, 1961.

For further information and application forms, write to: The Population Council, 230 Park Avenue, New York 17, New York.

Research Fellowships in Psychometrics

The Educational Testing Service is offering for 1961-62 its fourteenth series of research fellowships in psychometrics leading to the Ph.D. degree at Princeton University. Open to men who are acceptable to the Graduate School of the University, the two fellowships each carry a stipend of $3,750 a year, plus an allowance for dependent children. These fellowships are normally renewable. Fellows will be engaged in part-time research in the general area of psychological measurement at the offices of the Educational Testing Service and will, in addition, carry a normal program of studies in the Graduate School.

Suitable undergraduate preparation may consist either of a major in psychology with supporting work in mathematics, or a major in mathematics together with some work in psychology. However, in choosing fellows, primary emphasis is given to superior scholastic attainment and research interests rather than to specific course preparation.

The closing date for completing applications is January 6, 1961. Information and application blanks may be obtained from: Director of Psychometric Fellowship Program, Educational Testing Service, 20 Nassau Street, Princeton, New Jersey.

University of Minnesota Department of Statistics

During the academic year 1958-1959 the Department of Statistics was established at the University of Minnesota. The Department has supplemented and coordinated the statistical activities of the University-graduate curriculum, research, and consulting. The Department's organization involves direct appointments as well as joint appointments in mathematics and the sciences. Following is the current staff of the Faculties of Statistics: *Statistics:* L. Hurwicz, I. Olkin, D. Richter, I. R. Savage, M. Sobel; *Mathematics:* G. Baxter, M. Donsker, B. Lindgren, S. Orey, W. Pruitt, E. Reich, F. Spitzer; *Agriculture:* R. Comstock, C. Gates; *Biostatistics:* J. Bearman, J. Berkson, B. Brown, E. Johnson, R. McHugh; *Business Administration:* D. Hastings, J. Neter; *Industrial Engineering:* G. McElrath.

Publication of Proceedings of Regional Conference on Business Forecasting

The Proceedings of the Regional Conference on Forecasting and the Business Community held October 16, 1959, and sponsored by the San Francisco Chapter of the American Statistical Association have been published. Included are the following papers: "The Current Status of Business Forecasting"—William A. Spurr, "Forecasting the Demand for Timber Products"—Charles E. Young, "Forecasts of Consumer Demand for Specific Products"—Francis W. Dresch, "Population and Labor Force Projections—1960-1975"—Harold Goldstein, "The Aircraft Industry in Transition"—Marvin Lang, and "Forecasting by State Agencies"—W. R. Currie.

Copies of the Proceedings may be obtained from Professor Roy Cave, Economics Department, San Francisco State College, San Francisco, California, at $1.50 per copy.

Recent UN Statistical Publications

Two statistical publications have been issued recently by the Statistical Office of the United Nations. One of these, *Patterns of Industrial Growth, 1938-1958*, is the first in a new series of UN publications which will be issued periodically. This volume groups countries according to the degree of industrialization as well as by regions of the world, showing growth in manufacturing and mining production, employment and productivity. It shows that the level of world production of manufactures and mining products is now more than twice the level of 1938. In both the economically underdeveloped and the developed countries, the gains in industrial output were accomplished without corresponding increases in industrial employment. The twenty-year period was marked by proposed changes in the distribution of world industrial output among the regions of the world, Northern North America (U. S. and Canada) replacing Europe as the pre-eminent industrial region of the world.

The second statistical publication is the third edition of the United Nations *Yearbook of National Accounts Statistics, 1959*. This Yearbook is published in response to the growing demand for integrated statistical information relating to the structure and activities of national economies. It contains estimates for 88 countries and territories, and reflects the growth in both the number and quality of official national accounts which are now prepared on a regular basis by national statistical services. To facilitate country comparisons, however, the estimates for most countries are set out in standard tables and conform to the international definitions in this field. The tables are documented with explanatory notes and source information.

Both publications may be obtained from the United Nations Bookshop or the International Documents Service, Columbia University Press, 2960 Broadway, New York 27, N. Y. The price of *Patterns of Industrial Growth, 1938-1958* is $8.50 per copy; that of the *Yearbook of National Accounts Statistics, 1959* is $3.50.

New Reports by the Pennsylvania Bureau of Statistics

The Bureau of Statistics in the Pennsylvania Department of Internal Affairs has added a program on population statistics to its annual census programs for manufacturing industries, public utilities, mineral industries, and municipal authorities and its Statistical Abstract publication.

The new program of population statistics is devoted mainly toward the evaluation of population estimates for counties and municipalities in Pennsylvania. A series of four releases on population statistics has been prepared. These publications are:

Release No. P-1 *County and City Population Estimates for Pennsylvania*

A description is presented of the method of estimations used by the State Planning Board (the vital rates method) and measurements of the average error by size of county for the vital rates method and four other symptomatic methods. Tables of estimated and actual census counts of cities and counties are also included.

Release No. P-2 *County Population Estimates for Pennsylvania by Age and Sex*

Estimates based on a composite method of county population by age and sex are presented for July 1, 1958. Pennsylvania school census data are evaluated, and U. S. Bureau of the Census population estimates for broad age groups are compared with estimates prepared by the composite method.

Release No. P-3 *County Population Estimates—Notes on Methodology*

County population estimates for July 1, 1958 are computed using the U. S. Bureau of the Census Method II, and details of the methodology, as applied to Pennsylvania, are explained. In addition, county population is estimated using a modified vital rates method in which resident population, not including institutional and college population, is estimated. Estimates prepared by both of these methods, the vital rates method and the composite method, are compared and differences are analyzed.

Release No. P-4 *Local Population Estimates in Pennsylvania*

This release lists the local planning commissions and agencies preparing estimates for municipalities in Pennsylvania. Each method of estimation is briefly described, and the dates of the most recent estimates and of any population projections are given.

Another new release published by the Bureau of Statistics is *Manufacturing Employment in Urban, Suburban, and Rural Places in Pennsylvania*. This release presents data on manufacturing establishments and employment collected in the 1958 Industrial Census of

(Continued on page 49)

International STATISTICAL ACTIVITIES

INTERNATIONAL STATISTICAL INSTITUTE

The 32nd Session of the International Statistical Institute was held at Tokyo, May 31-June 9, 1960, and was attended by 318 participants (102 members, 91 guests from outside Japan, and 125 from Japan). The proceedings and scientific papers will be published as volume 38 of the *ISI Bulletin*. (The provisional program of session titles was published in the October 1959 issue of this journal; the list of scientific papers distributed to participants includes 136 titles.)

The **75th anniversary** of the ISI was celebrated at the Opening Ceremony of the Session. In recognition of this occasion, the Emperor of Japan bestowed the Order of the Rising Sun (2nd Class) to the President of the ISI. The same Order was bestowed to the Secretary-General (3rd Class) and the Director of the Permanent Office (4th Class). The decorations were presented by the Prime Minister of Japan.

In view of their eminent contributions to statistics in Japan, Dr. Stuart A. Rice and Dr. W. Edwards Deming were decorated with the Order of the Rising Sun (2nd Class), and the Order of the Sacred Treasure (2nd Class), respectively.

During the ISI meeting, the **Union of Japanese Scientists and Engineers** (JUSE) celebrated the tenth anniversary of the **Deming Prize** for Application, at a ceremony honoring the recipients of the 1959-60 awards and Dr. Deming.

—*ISI Newsletter*, The Hague
—*The Japan Times*, Tokyo

BIOMETRIC SOCIETY

Over 150 people from 15 different countries attended the meeting in Leyden, Netherlands, sponsored by the Biometric Society, a **Symposium on Quantitative Methods in Pharmacology**, May 10-13, 1960. The largest number came from the Netherlands, the host country, and the next largest from the U.K. People came from as far as Australia, India, the Hawaiian Islands, and Israel.

Twenty-seven papers were presented at six half-day technical sessions entitled: (1) Sequential analysis; (2) Standardization of drugs; (3) Parametric or non-parametric statistical methods; (4) Screening of drugs; (5) Mixtures of drugs; and (6) Miscellaneous topics.

Of the American participants, papers were given by Pelikan of Boston, Gurland of Ames, Iowa, Goldberg of Berkeley, and two who claimed double residence, Dunnett of Pearl River, New York, and Aberdeen, Scotland, and Schneiderman of Bethesda, Md., and London.

The arrangers of the Conference and of the weather outdid themselves to make for a pleasant and well-run meeting. We were greeted at the Town Hall of Leyden by the Burgomaster, who made a speech of welcome in English, without tripping over a "stochastic process". The group were then shown around the town hall, and fed a Dutch lunch (a "bread", with cold meat and cheese, plus excellent coffee).

Meetings were all held in the new physiology building of the medical school, in a fine auditorium equipped with all sorts of devices for turning on and off everything but the speakers. The second day of the meeting included a visit to the older section of the University, including the chapel with its stained glass windows depicting the birth, growth, and survival of the University through four military conquests or periods of occupation, the Spanish, the French, the German and the Japanese (in Indonesia). The University of Leyden is the oldest in Holland, having been founded in 1575 upon the choice by the people of Leyden to have a University rather than 10 years of freedom from taxes.

—M. A. Schneiderman
National Cancer Institute

La Societe Adolphe Quetelet, representing the Belgian Region of the Biometric Society, has inaugurated in 1960 a new quarterly journal entitled *Biométrie—Praximétrie*. Additional information may be obtained from

Société Adolphe Quetelet
7 rue Héger-Bordet
Brussels 1, Belgium.

—*Biometrics*

EUROPEAN ORGANIZATION FOR QUALITY CONTROL

The fourth annual conference of the EOQC was held at London, September 1-3, 1960. The theme of the conference was "Controlling Product Quality—Its Value to Industry". The following papers were presented at four technical sessions.

The Value of the Control of Product Quality. F. Nixon (England).
The Establishment of a Realistic Quality Level. Dr. W. Masing (Germany).
Achievement of the Established Quality Level. Prof. Paul C. Clifford (U.S.A.).
Developments in Qualitative Methods of Inspection. E. Befahy (Belgium).
Developments in Quantitative Methods of Inspection. R. Rambach (France).
Using Frequency Distribution for Diagnosis. Prof. A. Palazzi (Italy).
Short Cuts to Diagnosis. Dr. Ellis R. Ott (U.S.A.).
Economy of Planned Investigation. Dr. D. R. Cox (England).
Evolutionary Operation. Dr. G. E. P. Box (U.S.A.).
Role of Quality Assurance and Product Quality. B. L. Lubelsky (U.S.A.).
Concept of Integrated Control of Product Quality. J. van Ettinger (Netherlands).

—*Sigma: Tijdschrift voor Industriële Statistiek en Kwaliteitsbeleid*, Rotterdam

FOOD AND AGRICULTURAL ORGANIZATION

The first part of a *Handbook on Data Processing Methods* has been issued provisionally by the United Nations in New York and the FAO in Rome. The handbook has been produced by a joint team from the United Nations and the FAO, working in the Statistics Division of FAO headquarters, Rome. The head of the team is Mr. Charat K. Dilwali of the UN.

An announcement distributed by the FAO states that the handbook will consist of 12 chapters, eight of which are now ready, covering the principal methods of data processing, planning and organizing services, source documents, their design and location, codes and coding techniques, punch cards of various types and designs, and punch card sorting. Punching and verifying, auxiliary punch card machines and supervision of the machine department are also dealt with.

The eight chapters have been distributed to UN member countries so that they can be used in connection with the 1960 World Census of Agriculture in which about 100 countries are participating, as well as the 1960 World Census of Population. The first three chapters are written in nontechnical language and are primarily intended for use by senior government officials. The remaining chapters are intended primarily for the use of supervisory and operating staff and processing services as well as professional statisticians.

In connection with the problem of under-developed countries in carrying out the 1960 World Agricultural Census, the FAO announcement stated that there was a proposal to arrange a pilot project for central tabulation of data by electronic computers, with the cooperation of the International Computation Center of UNESCO located in Rome. This envisaged transferring data in the form of microfilms, tapes or cards, and processing them under FAO supervision and flying back results to the countries concerned. The confidential nature of information would be safeguarded through international supervision of the operation. The technical and logistic problems involved in the project are now being examined.

FRANCE

Two new quarterly journals of research in sociology are being published.

The *Revue française de sociologie*, published by the **Centre d'etudes sociologiques,** with the aid of the Centre National de la Recherche Scientifique, was inaugurated in 1960. In addition to research papers, the journal will publish reviews and bibliographic notes, and will include a section entitled "Actualité de la recherche", concerning research in progress in France and elsewhere. A summary in four languages—English, Spanish, German, and Russian—will be included. The *Revue française de sociologie* is printed and distributed by the publishing house of R. Juillard, 34 rue de l'Université, Paris 7e.

The journal *Sociologie du travail*, published by the **Association pour le developpement de la sociologie du travail,** appeared first in the last quarter of 1959. Each issue of 96 pages includes articles, critical notes and bibliography. *Sociologie du travail* is distributed by the publishing house of Seuil, 26 rue Jacob, Paris 6e.

A third new quarterly journal entitled *Tiers Monde*, dealing with problems of under-developed nations, was inaugurated in 1960 by the **Institute d'etude du development economique et social.**

—*Population*, Paris

GERMANY

The Third **Colloquium on Mathematical Statistics and Probability Theory** was held during the week of March 6-12, 1960, in Oberwolfach in the Black Forest district of Germany, at the Lorenzenhof, a small castle or large house, which together with its grounds has become the property of the Mathematisches Forschungsinstitut. The sleeping, dining, conference room, and library facilities are used during the academic year for conferences of specialists in various fields of mathematics, meeting generally for a week at a time. In the summer, the house and library are made available to individual researchers.

The series of week-long conferences in statistics and probability began in 1956 and has been held biennially in early March since then. The 1960 meeting attracted about 45 attendees, of whom 21 read papers. Since all the non-Germans present, twelve in number, presented papers, the meeting had a strongly international flavor. The technical program was arranged by Prof. Klaus Krickeberg of the University of Heidelberg. The complete program of the meeting follows.

Sequentielle Versuchsplane, W. Vogel (Tübingen)
Die Kombination nichtparametrischer Tests, E. Walter (Gottingen)
χ^2—Teste mit geordneten Stichprobenfunktionen, H. Witting (Freiburg)
Distributions of the number of components of finite random mappings, L. Katz (East Lansing and London)
Bedingte Markoffsche Prozesse, J. Kerstan (Berlin)
Über Masszahlen der Abhangigkeit zweier Zufallsveranderlichen, A. Rényi (Budapest)
Flunctuations of sums of random variables, E. S. Andersen (Aarhus)
Eine Bemerkung über stochastische Konvergenz, K. Krickeberg (Heidelberg and Aarhus)
Markoffsche Strategien bei wiederholten Spielen, G. Elfving (Helsinki)
Erwartungstreue Schatzungen oder Grenzwertsatz auf Gruppen, L. Schmetterer (Hamburg)
Inversion formulae for characteristic functionals of stochastic processes, M. D. Donsker (Minneapolis and Aarhus)
Bedingte Kausalketten, H. Wold (Uppsala)
Zur Verteilung des Absorptionszeitpunktes bei speziellen Markoffschen Ketten, H. Klinger (Gottingen)
Die Optimalitat bei zweiseitigen Teste, J. Pfanzagl (Wien)
Über einen Exponentialverteilungstest, H. Stormer (München)
Nouvelles constructions de processus de Markov, N. Neveu (Paris)
Sur quelques propriétés algébriques des événements recorrents, Schutzenberger (Poitiers)
Statistiche Methoden in der Behandlung von elementaren deduktiven Theorien, A. Spacek (Prague)
Einige Struktursatze über die Wahrscheinlichkeitsfelder, D. Kappos (Athens)

Estimation of the infinitesimal generator of a finite state, continuous time Markov process, A. Albert (Stanford and Stockholm)

Ein Kriterium für die σ-Additivität eines Inhalts auf einem Produktkorper, D. Bierlein (Landshut)

—Dr. Leo Katz
Office of Naval Research, London

The 31st annual congress of the **German Statistical Society** will be held in Bremen, November 23-25, 1960. The chief topic of the general assembly will be "transport (Verkehr) and statistics", on which representatives of science, economics and administration will present papers. The topic "transport as an object of statistical observation" has become more and more important not only in statistics, but also in many fields both on the national and on the international level. In this connection, one paper will be concerned in detail with the problems and possibilities of the practical applicability of sampling methods in transport statistics. The general assembly of the German Statistical Society will not only discuss the problem how traffic can be covered at present as exactly and completely as possible from the statistical point of view, but also a competent expert will discuss in a paper the wishes and demands concerning street accident statistics for accident cause research.

As every year, at the 31st annual congress there will meet the committee on "use of statistical methods in industry", the "committee on new statistical methods" as well as the subcommittee I "market observation and market analysis", the subcommittee II "business statistics" and the "team regional statistics".

—Dr. O. Boustedt, Secretary
German Statistical Society

RUMANIA

The Cluj branch of the Society for Mathematical and Physical Sciences of the Rumanian Popular Republic has resumed publication of its journal *Mathematica*. Volume One of the new series appeared in 1959; the 23 volumes of the first series were published at Cluj during the years 1929-1948.

The journal *Mathematica* aims to further collaboration between Rumanian mathematicians and mathematicians of other countries. Papers will be published in Rumanian, Russian, French, English, German, and Italian. The new series of *Mathematica* will appear in annual volumes of two issues of about 160 pages each. The managing editor is Tiberiu Popoviciu, Institutul de Calcul, str. Republicii nr. 37, Cluj, Rumania.

—*Mathematica*, Cluj

USSR

A scientific conference on problems of the application of **mathematical methods in economic investigations and planning,** sponsored by the Section on Economic, Philosophic, and Legal Sciences of the Academy of Sciences, was held in Moscow, April 4-8, 1960. Participants in the conference included economists, mathematicians, statisticians, and engineers.

At the opening plenary session, the conference was addressed by V. S. Nemchinov. Papers were presented also by I. S. Bruk, Director of the Institute for Electronic Computers, and by L. V. Kantorovich, V. V. Novozhilov, P. S. Mstislavski, A. N. Kolmogorov, and others. At the closing session, the conference was addressed by the President of the Academy of Sciences, A. N. Nesmeianov.

A report of the conference, by Ia. P. Gerchuk and E. L. Mints, was published in the *Vestnik* of the Academy of Sciences, July 1960.

—*Vestnik AN SSSR*, Moscow

UNITED KINGDOM

The 1960 Joint Conference of the Industrial Applications and Research Sections of the **Royal Statistical Society,** on "Modern Statistical Techniques", was held at Durham, September 16-18. There was a single stream of eight 1½-hour sessions each of two papers with discussion. Preprints of most papers were mailed to participants a week before the meeting.

Titles of the eight sessions were: (1) Time series, (2) Analysis of experiments, (3) Simulation, (4) Multivariate analysis, (5) Statistical autocodes, (6) Surveys, (7) Operational research, (8) Non-linear estimation.

—Royal Statistical Society

YUGOSLAVIA

The Sixth Plenary Meeting of the **Yugoslav Statistical Society** was held at Belgrade, September 15-18, 1960. The technical program was organized in half-day sessions. Two of these concerned the "System of Economic Statistics in the FPR of Yugoslavia". There were a session on "Statistical Education", and one each on mathematical statistics and demographic statistics.

One of the sessions was devoted to the topic "Electronic Machines Applications in Statistics". It was included in the program in connection with the inauguration of the Electronic Computer Center of the Federal Statistical Institute, which took place during the meeting.

Papers prepared for the meeting were provided with summaries in French and English.

—Yugoslav Statistical Society

FEDERAL STATISTICAL ACTIVITIES

1961 Appropriations for Principal Statistical Programs

Recommendations for major statistical programs were presented in a Special Analysis derived from the U. S. Budget for the Fiscal Year 1961 and summarized in *The American Statistician* for February 1960. These recommendations continued efforts toward achievement of an integrated program designed to provide improved statistical measures of the functioning, welfare and progress of the various sectors of our national economy.

The major current statistical programs, the amounts available for 1960, the requests for 1961, and the amounts available for 1961 are shown by broad subject areas and by agency in the first two tables. Table 3 covers noncurrent major projects of a periodic nature.

A brief summary of the changes in current programs is shown in Table 1 by broad subject areas. The description is limited to changes which affect the content of major statistical programs and does not cover changes resulting from increased costs, health benefit costs, minor shifts within allocations, and other nonprogram adjustments. Supplemental requests to cover increased pay costs resulting from the Federal employees' pay raise effective July 1960 are also omitted, and figures for 1961 will be affected by the action taken on such requests.

Labor statistics.—Increases proposed and approved in this area in 1961 were largely offset by a nonrecurring item in the 1960 appropriation for the Bureau of Labor Statistics. The approved increases include one new program—a BLS study of labor aspects of world trade and markets.

This area includes the statistics compiled by the BLS on the labor force, labor turnover, employment and earnings by industry, occupational wage rates, industrial relations, industrial hazards, foreign labor conditions, and productivity. It also includes the statistical work done by the Agricultural Marketing Service on farm labor.

Demographic statistics.—Increases approved in this area in 1961 include: $670,000 for a full-scale national health examination survey; about $150,000 to allow the National Office of Vital Statistics to develop life tables, prepare detailed tabulations for births and deaths, and improve marriage and divorce statistics; and a small increase for strengthening the statistical staff of the Office of Education.

The Congress also appropriated $100,000 for Public Health Methods and Reports for studies of the needs for and the problems of organizing and providing medical care services in the Nation.

This area includes the research and statistical activities of the Office of Education; the work of the National Office of Vital Statistics; the National Health Survey and Public Health Methods and Reports in the Public Health Service; and the population work of the Bureau of the Census and the Agricultural Marketing Service.

Prices and price indexes.—No changes were proposed for the current programs in this subject area in 1961. These include the work of the Bureau of Labor Statistics dealing with wholesale and consumer prices and of the Agricultural Marketing Service on prices received and paid by farmers and on factors affecting prices, supply, and consumption of agricultural products.

Production and distribution statistics.—Approximately $1.3 million increases were approved for programs in this area. Nearly $1 million was approved for the Crop and Livestock Estimates of the Department of Agriculture, with $430,000 earmarked for specific statistical programs, including $250,000 for the long-range program to improve crop and livestock estimating in addition to the $500,000 budget request for this program. The Bureau of the Census received $104,000 for the initiation of an annual company statistics survey, extension of current program coverage to include Alaska and Hawaii, and general administrative costs. In addition, $225,000 was approved for the Bureau of the Census for foreign trade statistics.

Included in this area are the current programs of the Bureau of the Census on retail, wholesale, and service trades; manufacturing; agriculture; and foreign trade and shipping. Also included are the Agricultural Marketing Service programs on crop and livestock estimates and the Agricultural Research Service program on the economics of farm production.

Construction and housing statistics.—The amount proposed and approved for 1961 for programs in this area, all located in the Bureau of the Census, remained at the same level as in 1960.

National income and business financial accounts.—This area includes the Office of Business Economics, the statistical reporting functions of the Internal Revenue Service, estimates of farm income by the Agricultural Marketing Service, statistics on the operations of State and local governments compiled by the Bureau of the Census, the financial reports program conducted jointly by the Federal Trade Commission and the Securities and Exchange Commission, and other economic statistical series compiled by SEC.

Amounts shown for the statistical reporting functions of the Internal Revenue Service for 1961 are not directly comparable with those shown for 1960 because of a realignment of functions within IRS. Preparation of repetitive and periodic operating reports has been transferred to a newly organized Reports Division. This transfer of function will permit the Statistics Division to direct a higher proportion of its remaining resources to statistical research. In addition to continuation of work on the established Statistics of Income series, the report covering U. S. Business Tax Returns, first published in 1960, will be enlarged and issued as a regular sales publication. Also the ratios first introduced in the 1957 report on Corporations will be expanded to cover ad-

ditional classes of data from 1958 corporation returns. Following the small pilot operations of the two preceding years, a comprehensive new program of published data for the largest 100 standard metropolitan statistical areas from individual income tax returns will be undertaken.

Periodic programs.—In fiscal 1961, the Bureau of the Census will complete most of the publication program for the 1958 Censuses of Business, Manufactures, and Mineral Industries and the preparatory work for the 1962 Census of Governments. With the completion of field enumeration for the 18th Decennial Censuses of Population and Housing, the Bureau will begin the large-scale electronic processing of the data to provide the necessary tabulation of results.

A supplemental amount of $8,500,000 (of $9,000,000 requested) was appropriated by the Congress to insure the planned completion of the tabulation and publication program of the 18th Decennial Census. The request for additional funds was the result of greatly increased costs required to complete the field enumeration.

In the Bureau of Labor Statistics, work will be sharply expanded on the revision of the Consumer Price Index. Fiscal 1961 is the second year of a five-year program, and during fiscal 1961 consumer expenditure surveys will be conducted in about half of the cities to be covered. The remaining cities will be surveyed in the following fiscal year.

Table 1

Appropriations or Allocations for Principal Current Statistical Programs, by Broad Subject Areas (in thousands)

Area	1960 appropriation	1961 Budget estimate	1961 appropriation
Labor statistics	$ 8,459	$ 8,515	$ 8,515
Demographic statistics	5,821	6,758	6,833[1]
Prices and price indexes	4,027	4,044	4,044
Production and distribution statistics	14,357	15,984[2]	15,755[3]
Construction and housing statistics	1,290	1,300	1,300
National income and business financial accounts	5,167	5,646	5,375
Total, major current programs	$39,121	$42,247	$41,822

[1] Includes $100,000 not included in the Budget estimate.
[2] Includes supplemental request for $300,000.
[3] Includes supplemental appropriation of $225,000 and $429,500 not included in the Budget estimate.

Table 2

Appropriations or Allocations for Principal Current Statistical Programs, by Agency (in thousands)

Agency	1960 appropriation	1961 Budget estimate	1961 appropriation
Department of Agriculture			
Agricultural Marketing Service—			
Economic and statistical analysis	$ 1,633	$ 1,644	$ 1,644
Crop and livestock estimates	6,436	7,036	7,465[1]
Agricultural Research Service—			
Farm economics research	2,941	3,037	2,936
Department of Commerce			
Bureau of the Census	8,674	9,870[2]	9,123[3]
Office of Business Economics	1,405	1,500	1,405
Department of Health, Education and Welfare			
Office of Education—			
Educational Statistics Branch	787	858	853
Public Health Service—			
National Office of Vital Statistics	1,624	1,787	1,787
National Health Survey	1,477	2,157	2,157
Public health methods and reports	593	595	695[4]
Department of Labor			
Bureau of Labor Statistics	10,520	10,519	10,519
Treasury Department			
Internal Revenue Service—			
Statistical reporting	2,594	2,800	2,800
Federal Trade Commission			
Financial reports	206	213	212
Securities and Exchange Commission			
Operational and Business Statistics	231	231	226
Total major current programs	$39,121	$42,247	$41,822

[1] Includes $429,500 not included in Budget estimate.
[2] Includes supplemental request for $300,000.
[3] Includes supplemental appropriation of $225,000.
[4] Includes $100,000 not included in the Budget estimate.

Table 3

Appropriations for Periodic Programs

	1960 appropriation	1961 Budget estimates	1961 appropriation
Department of Commerce			
Bureau of the Census			
1958 Censuses of Business, Manufactures and Mineral Industries	$ 5,825	$ 1,125	$ 1,125
18th Decennial Census	86,500	18,000	26,000[1]
1962 Census of Government	——	100	90
Department of Labor			
Bureau of Labor Statistics			
Revision of Consumer Price Index	230	1,250	1,250
Total, periodic programs	$92,555	$20,475	$28,465

[1] Includes $8,500,000 supplemental appropriation.

Historical Statistics of the United States, Colonial Times to 1957

A new and expanded version of *Historical Statistics of the United States* has been issued by the Bureau of the Census. The new volume prepared in cooperation with the Social Science Research Council covers colonial times to 1957 and completely supersedes its predecessor, *Historical Statistics of the United States, 1789-1945.*

The new volume contains more than 8,000 time series spread over 24 chapters and 51 sections. The time series in each section are accompanied by text notes which specify as precisely as possible the source of the data, list references to other sources, frequently discuss the historical development of the data and evaluate their reliability, present definitions of technical terms used, and refer to qualifications of the data.

The expansion in scope of subject matter between the

first edition and the new volume is reflected in the increase in number of series from 3,000 to 8,000 and in the number of new subjects added. All the subjects including such staples as population, agriculture, construction and housing, banking and finance, governments, labor force, foreign trade, manufactures, transportation, wealth and income, and others which were included in the first edition have been carried over into the new volume. Each of the 14 chapters in the first edition was thoroughly reviewed. Figures and text were revised wherever necessary, and all material made obsolete by more recent studies was replaced. Data which were of questionable validity or value were omitted. In many cases, new series have added depth to the former presentation.

The new subject fields added include armed forces and veterans, education, communications, social security, climate, distribution and services, consumer expenditure patterns, religious affiliation, recreation, crime and correction, business population, corporate assets, research and development, and private insurance. A separate chapter is devoted entirely to colonial statistics.

Experts from both governmental and private organizations made significant contributions to the new volume. In addition to the staff members of the Census Bureau assigned to this project and the members of the Committee on Historical Statistics appointed by the Social Science Research Council to advise the Census Bureau, more than 125 experts served as consultants, reviewers, compilers, and coordinators of data. These experts came from 30 Federal Government agencies, 24 universities, and a number of private research and other organizations.

As was done with respect to series presented in the first edition, current data for a great many of the series in the new volume will be presented in the 1960 and subsequent issues of the *Statistical Abstract of the United States*. A historical appendix in the *Statistical Abstract* will identify those series appearing in *Historical Statistics* for which tables in the *Abstract* present current comparable figures. The 1960 edition with features was issued in August.

Copies (buckram-bound) of *Historical Statistics of the United States, Colonial Times to 1957* are priced at $6.00 and may be obtained by writing to the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

—William Lerner, Acting Chief
Statistical Reports Division,
Bureau of the Census

Review of Standard Metropolitan Statistical Areas

Definitions of 23 new standard metropolitan statistical areas in the United States have been announced by the Bureau of the Budget. The new areas qualify for inclusion in this program on the basis of preliminary data made available from the 1960 Census of Population, showing primarily that a city or "twin cities" in each area attained a population of at least 50,000. In addition to the establishment of the new areas, 5 area titles and 3 area definitions have been amended.

The new areas for which definitions were given in the announcement are: Abilene, Texas; Albany, Georgia; Billings, Montana; Brownsville-Harlingen-San Benito, Texas; Colorado Springs, Colorado; Eugene, Oregon; Fargo-Moorhead, North Dakota-Minnesota; Fort Lauderdale-Hollywood, Florida; Great Falls, Montana; Huntsville, Alabama; Lake Charles, Louisiana; Las Vegas, Nevada; Lawton, Oklahoma; Meriden, Connecticut; Midland, Texas; Monroe, Louisiana; Norwalk, Connecticut; Odessa, Texas; Provo-Orem, Utah; Reno, Nevada; Tuscaloosa, Alabama; Texarkana, Texas-Arkansas; and Tyler, Texas.

The 5 amended area titles are Binghamton-Endicott, New York; Galveston-Texas City, Texas; Providence-Pawtucket, Rhode Island; Springfield-Chicopee-Holyoke, Massachusetts; and Youngstown-Warren, Ohio. The 3 amended area definitions apply to Oklahoma City, Oklahoma; Tulsa, Oklahoma; and Wichita Falls, Texas.

The 23 new areas bring the total number of standard metropolitan statistical areas to 215. The new areas supplement the list presented in "Standard Metropolitan Statistical Areas" (SMSA) published by the Bureau of the Budget in 1959. Adjustment in the list of new areas may be required as a result of changes between the Census Bureau's preliminary and final figures.

The 1959 edition of "Standard Metropolitan Statistical Areas" is out of print but the Bureau of the Budget will issue a listing of all SMSA's and their definitions on or about October 1. Requests for copies of this listing may be made to the Publications Unit, Bureau of the Budget, Washington 25, D. C.

—Frank A. Cisar
Office of Statistical Standards
Bureau of the Budget

Newly Established National Center for Health Statistics

A National Center for Health Statistics has been established in the Public Health Service, Department of Health, Education, and Welfare. The new organizational unit brings together the major Public Health Service activities concerned with measurement of the health status of the nation and identification of significant associations between characteristics of the population and health-related problems. Initially it will have two Divisions: The U. S. National Health Survey, which was transferred to it on August 15; and the National Office of Vital Statistics, which will become part of it on October 1. It will supplement but not supplant the statistical work which is associated with particular PHS programs, and which will continue as integral parts of those programs.

Dr. Forrest E. Linder, who has been Director of the National Health Survey since its inception in 1956, is Director of the Center.

The Center will have a staff unit for statistical programming to serve as a focal point for data processing expertise, to encourage maximum use of improved tech-

niques in health statistics collection and analysis, and to make technical assistance available to other workers in this field. Another staff unit, for health trends analysis, will have as its primary function the analysis and interpretation of health and vital statistics from a variety of sources.

New Monthly Estimates of Housing Starts

A new series of monthly estimates of housing starts in the United States was released by the Bureau of the Census on May 31. The new series results from work which has been underway at the Census Bureau since July 1959 when responsibility for compilation of construction statistics was transferred to the Bureau and additional funds were made available for research, for development of new series and for expanded collection of basic data.

The new series presents monthly figures for January-April 1960 with approximately comparable monthly data for each month of the year 1959. It replaces the previous series of nonfarm housing starts published monthly through April 1960. In the new series, figures are shown for total housing starts including those on farms, and separately for nonfarm housing starts. Detailed breakdowns provide information by ownership, by type of structure, by metropolitan and nonmetropolitan location, and by region—the same breakdowns available in the former series. For total private construction seasonally adjusted annual rates are provided.

First publication of the new series is in "Construction Reports—Housing Starts: C20-11 (Supplement)." This report contains both the new estimates and a summary description of the changes in the scope of the series and in the method of its compilation. Subsequent monthly starts reports will continue to be identified as the C20 series.

The new series differs from the data previously published in two principal respects. First, the number of housing units reported is at a significantly higher level in the new series than in the old. Of equal importance is the fact that the new series measures more directly and accurately the month-to-month changes in the number of housing units started.

The new series undertakes to make a direct measurement of the changes in actual housing starts from one month to the next. Current surveys conducted each month measure the time lag between permits and start of construction as well as the proportion of permits which are never used.

The increase in the general level of the series and the change in the method of measuring month-to-month movements have resulted in figures which are not directly comparable with those of the old series for 1958 or any previous periods. A revision of earlier data is planned when the results of the 1960 Census of Housing, including the Survey of Components of Change, become available.

—Samuel J. Dennis, Chief
Construction Statistics Office
Bureau of the Census

Retirement of Virginia T. Venneman

Mrs. Virginia T. Venneman has retired from Government service because of illness. She was with the Office of Statistical Standards, U.S. Bureau of the Budget, where one of her principal responsibilities was the editorship of the *Statistical Reporter*. Originating 25 years ago as the "Secretary's Report" of the old Central Statistical Board, the *Statistical Reporter* was developed into its present form by Mrs. Venneman during her 17 years as editor. It was under her guidance that it became a central source for keeping Government statisticians informed of current developments in statistics and statistical research. This monthly report was incidental to a large variety of general assignments involving an intimate knowledge of the Federal statistical system.

Mrs. Venneman served as Correspondent for Federal Statistical Activities for THE AMERICAN STATISTICIAN. For several years she has been primarily responsible for the Federal Statistical Activities section of this publication.

Miss Emily T. White of the Office of Statistical Standards is the new editor of the *Statistical Reporter*. Mr. Morris B. Ullman, for many years with the Bureau of the Census and now on the staff of the Office of Statistical Standards, Bureau of the Budget, becomes the correspondent for Federal Statistical Activities for *The American Statistician*.

Among Recent Federal Publications

Bureau of the Budget, Office of Statistical Standards

The 18th edition of the *Federal Statistical Directory*, dated April 1960, which lists the professional and technical personnel of Federal agencies in Washington, is available for 55¢ a copy from the Superintendent of Documents, Government Printing Office, Washington 25, D.C.

Special Surveys of the Labor Force—An Annotated Bibliography provides a ready reference to a large number of special surveys conducted or sponsored by Federal agencies in this field in recent years. The supply of copies is limited and, while they last, can be obtained from the Publications Unit, Bureau of the Budget, Washington 25, D.C.

Board of Governors of the Federal Reserve System

Industrial Production—1959 Revision (229 pages) is a complete report on the revision of the industrial production index. It is available at $1.00 a copy up to ten copies and 85¢ each for ten or more copies in a single shipment. Orders should be addressed to the Division of Administrative Services, Board of Governors of the Federal Reserve System, Washington 25, D.C.

Bureau of the Census

Revised and expanded lists of the publication programs for the 1960 Census of Population, the 1960 Census of Housing and the 1959 Census of Agriculture are available on request from the Bureau of the Census, Washington 25, D.C. Announcements and order blanks for other principal series of census reports, such as the Central Busi-

(Continued on page 40)

HOW ACCURATE?

by Julius Shiskin
Chief Economic Statistician
Bureau of the Census

Everyone agrees that statistics should be accurate. The question is, how accurate?

It is not reasonable to say that statistics should be "absolutely accurate," or "as accurate as possible." Such a point of view does not relate the needs for statistics to the particular uses to which they are put, nor does it recognize the relationship between the needs for statistics and the costs of collecting and compiling them.

This note suggests an approach that may be helpful in determining the accuracy required for statistics used in business-cycle studies. This approach involves a new statistical measure, MCD (Months for Cyclical Dominance), that is routinely computed in the Census Bureau's time series analysis program. Some properties of this measure are described and several potential uses indicated. This note is intended to be suggestive only; it does not try to present exact solutions for handling the problems considered.

The calculation of MCD requires first eliminating the seasonal factor from a series, and then breaking down the seasonally adjusted series into estimates of the cycle-trend and irregular components. The cycle-trend component measures the underlying—and more meaningful—business trends, which are assumed to be smooth. The irregular component measures the residual erratic fluctuations occasioned by a wide variety of factors. Included among these are exceptional events, such as unusual weather, strikes, unexpected political developments or the failure of a large business concern, and statistical errors, such as sampling errors, response errors, and errors caused by defective seasonal adjustments.

Studies show that the average month-to-month amplitude of the irregular factor remains about the same regardless of the span between the months compared; that is, the average monthly amplitude of the irregular factor will be about the same when computed for consecutive months (January-February, February-March, etc.), two month spans (January-March, February-April, etc.), three month spans (January-April, February-May, etc.) and so on; in contrast, the cycle-trend factor cumulates uninterruptedly in one direction as the span increases, for periods usually lasting six months or more (See Table 1). For some series (not illustrated in Table 1; see Table 2), the average amplitudes of the irregular factor are smaller than that of the cycle-trend even when measured over consecutive months. For most other economic series, there is some time span at which the average amplitude of the cycle-trend factor will overtake that of the irregular factor. The number of months span for which the ratio of the average monthly amplitude of the irregular to cyclical factor must be computed so that it will fall below unity may be taken as an index of the months required for the cyclical factor to become dominant over the irregular factor, on the average. This index is identified by the symbol MCD (Months for Cyclical Dominance).

A frequency distribution of MCD's is shown in Table 2 for 149 important economic time series, selected as broadly representative of the different activities of the U. S. economy, for the interwar years 1919-39 and post-World War II periods. This table provides a broad view of the relations between the irregular and the cyclical factors in U. S. economic series. It shows that, on a

TABLE 1

AVERAGE AMPLITUDES OF IRREGULAR AND CYCLICAL COMPONENTS FOR DIFFERENT MONTHS SPAN FIVE ECONOMIC SERIES

No. of Months Span	Average hours worked, 1947-56 (MCD = 2)			Unemployment, 1947-56 (MCD = 2)			Residential construction contracts, 1940-56 (MCD = 3)			Retail sales, 1947-56 (MCD = 4)			Business failures, 1947-56 (MCD = 6)		
	$\bar{I}$	$\bar{C}$	$\bar{I}/\bar{C}$	$\bar{I}$	$\bar{C}$	$\bar{I}/\bar{C}$	$\bar{I}$	$\bar{C}$	$\bar{I}/\bar{C}$	$\bar{I}$	$\bar{C}$	$\bar{I}/\bar{C}$	$\bar{I}$	$\bar{C}$	$\bar{I}/\bar{C}$
1	.30	.19	1.58	3.95	2.98	1.32	10.62	4.69	2.26	1.72	.56	3.07	15.71	3.21	4.89
2	.34	.39	0.87	4.69	6.00	0.78	12.85	10.09	1.27	1.79	1.12	1.60	15.01	6.28	2.39
3	.31	.57	0.54	4.64	8.98	0.52	12.60	15.04	0.84	1.66	1.64	1.01	14.65	9.01	1.62
4	.30	.74	0.41	4.79	11.94	0.40	11.64	20.08	0.58	1.85	2.15	0.86	14.13	11.24	1.26
5	.32	.89	0.36	3.91	14.74	0.26	11.23	25.02	0.45	1.43	2.63	0.54	13.64	13.10	1.04
6	.28	1.04	0.27	3.76	17.50	0.21	10.24	29.93	0.34	1.47	3.07	0.48	12.91	14.60	0.88
9	.27	1.48	0.18	4.19	25.74	0.16	10.96	44.57	0.24	1.54	4.30	0.36	12.20	20.21	0.60
12	.35	1.85	0.19	4.94	33.33	0.15	13.22	59.42	0.22	1.88	6.44	0.29	15.06	25.32	0.59

$\bar{I}$—Average percentage change (without regard to sign) in irregular factor.
$\bar{C}$—Average percentage change (without regard to sign) in cycle-trend factor.

month-to-month basis, the average change in the irregular factor is larger than that in the cyclical factor in about

TABLE 2

MONTHS REQUIRED FOR CYCLICAL FACTOR TO DOMINATE THE IRREGULAR FACTOR IN 149 IMPORTANT ECONOMIC SERIES, 1919-1939 and 1947-1956

Months required for cyclical factor dominance	Percentage distribution of 149 series according to measure, MCD	
	1919-1939	1947-1956
1	23	27
2	29	21
3	25	23
4	14	11
5	5	10
6 or more	4	8
Total	100	100

75 per cent of the series; over three-month intervals, it is larger in about 25 per cent of the series; over six-month intervals, it is larger in less than 10 per cent of the series. These results emphasize the importance of knowing the relative magnitudes of irregular and cyclical factors in interpreting current movements in economic series. They indicate that the month-to-month movements of most seasonally adjusted series are not "cyclically significant"; for most series, meaningful economic trends are revealed only by comparisons over spans of three months or longer. Month-to-month changes are, however, significant for many series, and this group (with MCD equal to one) includes such important series as the Federal Reserve index of industrial production, employment in nonagricultural establishments, personal income, the wholesale price index, and manufacturers' inventories. MCD for unemployment is two; for retail sales, new business incorporations, and new orders for durable manufactures—three; for temporary layoffs—four; and for liabilities of business failures—six. The measure MCD thus provides a guide for interpreting the short-term fluctuations of each series.

Comparisons of the difference between figures a specified number of months apart are also shown by simple moving averages. For example, an unweighted three-month moving average is calculated by summing the figures for the first three months, then adding the fourth month and dropping the first, adding the fifth month and dropping the second, and so on (in each case the sum is, of course, divided by 3). Thus in effect a moving average series shows changes over variable spans. The consecutive values of a three-month moving average shows changes over three month spans (counting from mid-month to mid-month), e.g., January-April, February-May, etc., a four-month moving average changes over four month spans, a five-month moving average changes over five month spans, and so on. Hence, if the period of a moving average is selected equal to MCD, the month-to-month movements in the moving average will just be dominated, on the average, by the cycle-trend movements in the data.

Empirical studies show that MCD moving averages all have about the same degree of smoothness. Consequently, MCD moving averages of highly irregular series, such as temporary layoffs and liabilities of business failures, will show their cyclical movements about as clearly as the seasonally adjusted data for such smooth series as nonagricultural employment and personal income.

Moving averages, however, suffer from the handicap of not reaching to the current month. Since they are centered at the middle of the interval covered by the average, there are no values for the last month(s). Thus the advantage gained in smoothness is offset to some extent by the disadvantage lost in currency. This is the price paid for the improvement in the series achieved by smoothing it. Longer-term moving averages would, of course, result in smoother series, but they would be less current. The MCD span seems to offer a reasonable compromise in terms of smoothness and currency.[1] The seasonally adjusted figures and their MCD moving averages are shown in the illustrative chart for six widely used business indicators.

It may also be of interest to note that MCD can be fairly accurately estimated from $\bar{I}/\bar{C}$ for a one-month span, by the formula MCD $= \bar{I}/\bar{C} + 0.5$. For the series shown in Table 1, the results are:

	Computed	*Estimated*
Average hours worked	2	2
Unemployment	2	2
Residential construction contracts	3	3
Retail sales	4	4
Business failures	6	5

The present computer program provides only for calculating MCD for spans from one to six months. It would appear that it can fairly accurately be estimated for longer spans from $\bar{I}/\bar{C}$ for one month. Furthermore, if it appears desirable for some purposes to set the critical value of $\bar{I}/\bar{C}$ at some point other than 1.00 let us say, 0.50 or 0.75, the corresponding MCD can also be estimated by dividing the second term of the formula given above by the critical value.

MCD may also prove to be a useful tool in statistical collection, and particularly in answering the question raised in the opening paragraphs of this note: what accuracy is required for statistics used in studies of business-cycle fluctuations? In such studies, the direction and magnitude of change in economic series is of fundamental importance. But it is also important to distinguish persistent, cumulative changes from irregular fluctuations. In series with a low value of MCD this distinction can be made more promptly, or (with a given degree of promptness) more accurately, than in series with high MCD. From this point of view, then, a goal of statistical collection should be to compile series for which MCD is low

[1] For a more detailed discussion of the properties of MCD described above, see "Electronic Computers and Business Indicators," *The Journal of Business*, University of Chicago, October 1957 (reprinted as Occasional Paper No. 57 by the National Bureau of Economic Research), pp. 235-243, and "Decomposition of Economic Time Series," *Science*, December 19, 1958, Vol. 128, No. 3338, pp. 1539-1546.

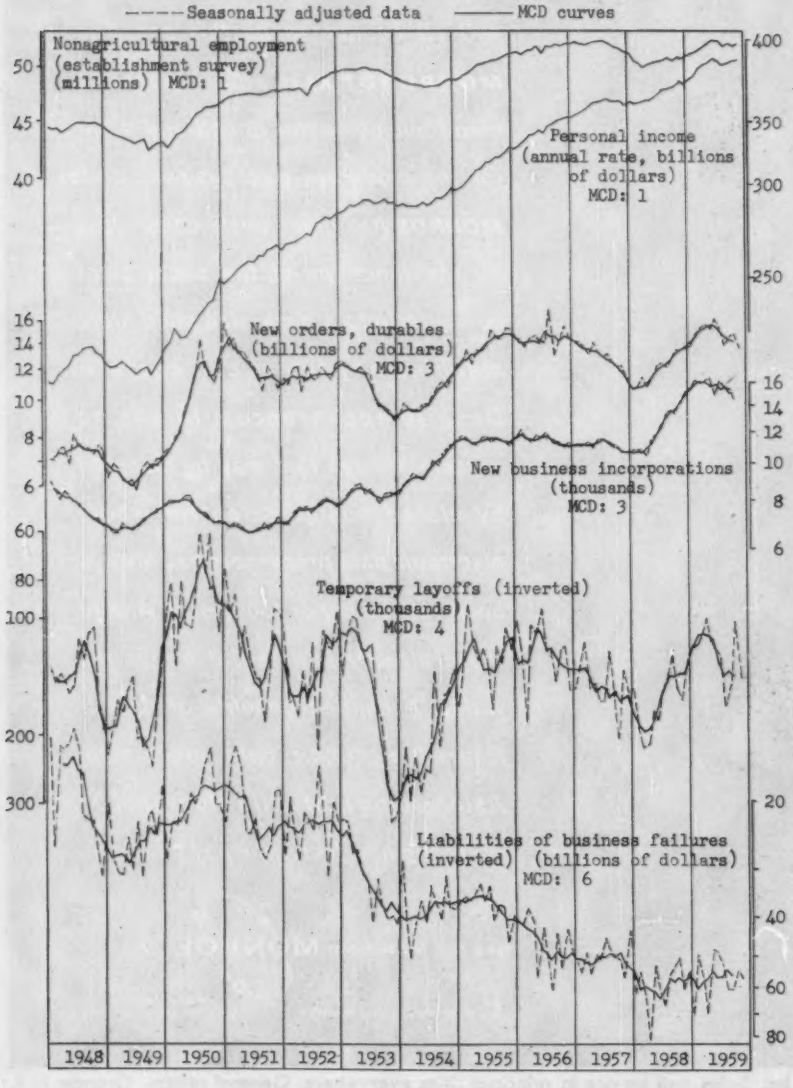
(let us say, unity). This approach takes into account not only the random fluctuations, but also their relations to the underlying trend. The questions are how this goal can be achieved and at what cost.

A distinction should be made between the part of the irregular fluctuations that is due to measurement error (response, processing, sampling and similar errors) and the part that is due to real fluctuations. Where the measurement error is known, it is possible to balance the costs and gains of reducing it. For this reason, measurement errors should be estimated, and their relationship to MCD analyzed.

For some series, MCD can be reduced to unity by reducing the errors of measurement. If this can be done at reasonable cost, it is an obvious course to follow. For other series, the measurement error is already relatively small and it may not be possible to reduce the irregular movements to the point where the month-to-month movements in the seasonally adjusted series are "cyclically significant." In such cases, short-term moving averages of the seasonally adjusted series, with the period of moving average equal to MCD, may be provided as a supplementary series to aid in the interpretation of movements in the seasonally-adjusted series.

Of course, when a new survey is started to provide time series data, it is not possible to calculate MCD. In such cases, related series may provide useful clues for tentatively estimating it. The effects of a procedural change in an existing survey may also be difficult to judge, as it may have a significant impact on the irregular component; i.e., enlarging the survey's sample may substantially reduce the sampling error which contributes to the irregular component, or reducing the sampling error may not affect MCD. Experiments carried out by adding error series (i.e. fictitious measurement errors) of increasing magnitude to the existing series, and calculating an MCD for each such contrived series may be helpful in these cases.

SIX BUSINESS INDICATORS AND THEIR MCD MOVING AVERAGES



Explanatory Note for Chart

The chart shows the seasonally-adjusted series for six widely used business indicators. MCD curves are also shown for these series. For two—nonagricultural employment and personal income—MCD equals one; their MCD curves are, therefore, the same as the seasonally-adjusted series. For the others, MCD is greater than one; their MCD curves are, therefore, short-term moving averages with periods equal to MCD.

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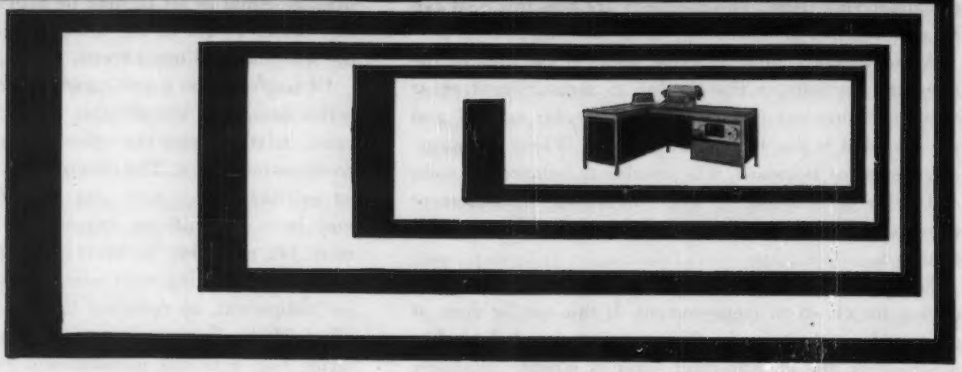

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RECENT STATISTICAL DEVELOPMENT IN THE PHILIPPINES

By Bernardino G. Bantegui

Director, Office of Statistical Coordination and Standards, National Economic Council

1. *Introduction*

The importance of census taking and other related statistical activities has long been recognized in the Philippines. The first estimate of the population of the Philippines was made in 1591, seventy years after Magellan's discovery of the Philippines. The population then was estimated at 667,612 "almas," or souls, based on the report entitled "Relacion de las Encomiendas Existentes en Filipinas el dia 31 de Mayo de 1591."

"The first official enumeration of the population was ordered by Royal Decree to be taken as of midnight, December 31, 1877. Royal Decrees issued at decennial intervals, ordered subsequent censuses to be taken as of midnight, December 31, 1887 and 1897." [1] Of the three censuses ordered, only the first two were completed since the last census was not carried out on account of the outbreak of the Spanish-American War.

Thereafter, censuses were conducted on March 2, 1903, December 31, 1918, January 1, 1939 and October 1, 1948. The first three of these latter censuses were undertaken with American technical assistance; the most recent was conducted solely by Philippine technical personnel.

While censuses and other large scale statistical operations are not new in the Philippines, the systematic production of statistics according to a national pattern to meet the continuing needs of the country is a recent development in the Philippines.

2. *Reorganization of the Statistical Services of the Government*

a. *The plan for national statistical coordination*

Efforts towards the promotion of an integrated statistical system did not receive much attention prior to the organization of the Philippine Statistical Association (PSA) on December 22, 1951. Under the leadership of its first President, Mr. Cesar P. Lorenzo, the PSA Board of Directors in 1952 submitted to the President of the Philippines a proposal which it believed would result in "lasting improvement and progressively sound development in the statistical services of the Philippines."

The Association proposed the creation of the Office of Statistical Coordination and Standards and the organization of the Statistical Advisory Board. Voicing support to the proposal of the Philippine Statistical Association, Hon. Aurelio Montinola, then Secretary of Finance and Chairman of the National Economic Council said, "Inadequate statistical coverage of our social and economic activities, inaccuracy and unreliability of some of existing statistics, and the duplication or overlapping of statistical work in many cases may find solution in the coordination, integration and standardization of various government statistical activities. . . . In the Philippines, a central coordinating authority points to the National Economic Council." [2]

The PSA also suggested that the Statistical Advisory Board should "undertake a systematic and comprehensive survey of government statistical services in the Philippines." Official action on the above proposal did not start until after the creation in 1954 of the Government Survey and Reorganization Commission.

The Government Survey and Reorganization Commission, after an extensive survey of the major aspects of the government statistical system, made the following recommendations:

"(1) Continue the present decentralized system of statistics but with a clearer allocation of responsibilities and elimination of duplication.

"(2) Strengthen the Bureau of the Census and Statistics by elimination of functions which are duplicated in other Government entities including the Central Bank. Establish that the Bureau of the Census and Statistics is the principal statistical entity with responsibility for mass enumeration and statistics with inter-departmental significance.

"(3) Establish an Office of Statistical Coordination and Standards at the highest possible level of government.

"(4) Establish a Statistical Advisory Board to assist this new Office in its task of establishing standards and allocating functions." [3]

The reorganization of the statistical services of the Philippine government started immediately after the President of the Philippines issued the Executive Orders implementing the reorganization plan.

b. *The present statistical organization*

The statistical system existing in the Philippines today is a decentralized system with a central coordinating authority. The Office of Statistical Coordination and Standards (OSCAS) of the National Economic Council (NEC) is the central statistical coordinating body. It is charged with the responsibility to (a) promote an orderly and efficient statistical system to meet the requirements of the government, (b) develop and prescribe adequate standards and methods for the use of other statistical agencies, and (c) maintain an effective coordination of decentralized statistical activities. This Office was created under Executive Order No. 119, July 1, 1955, and was formally constituted on January 2, 1956.

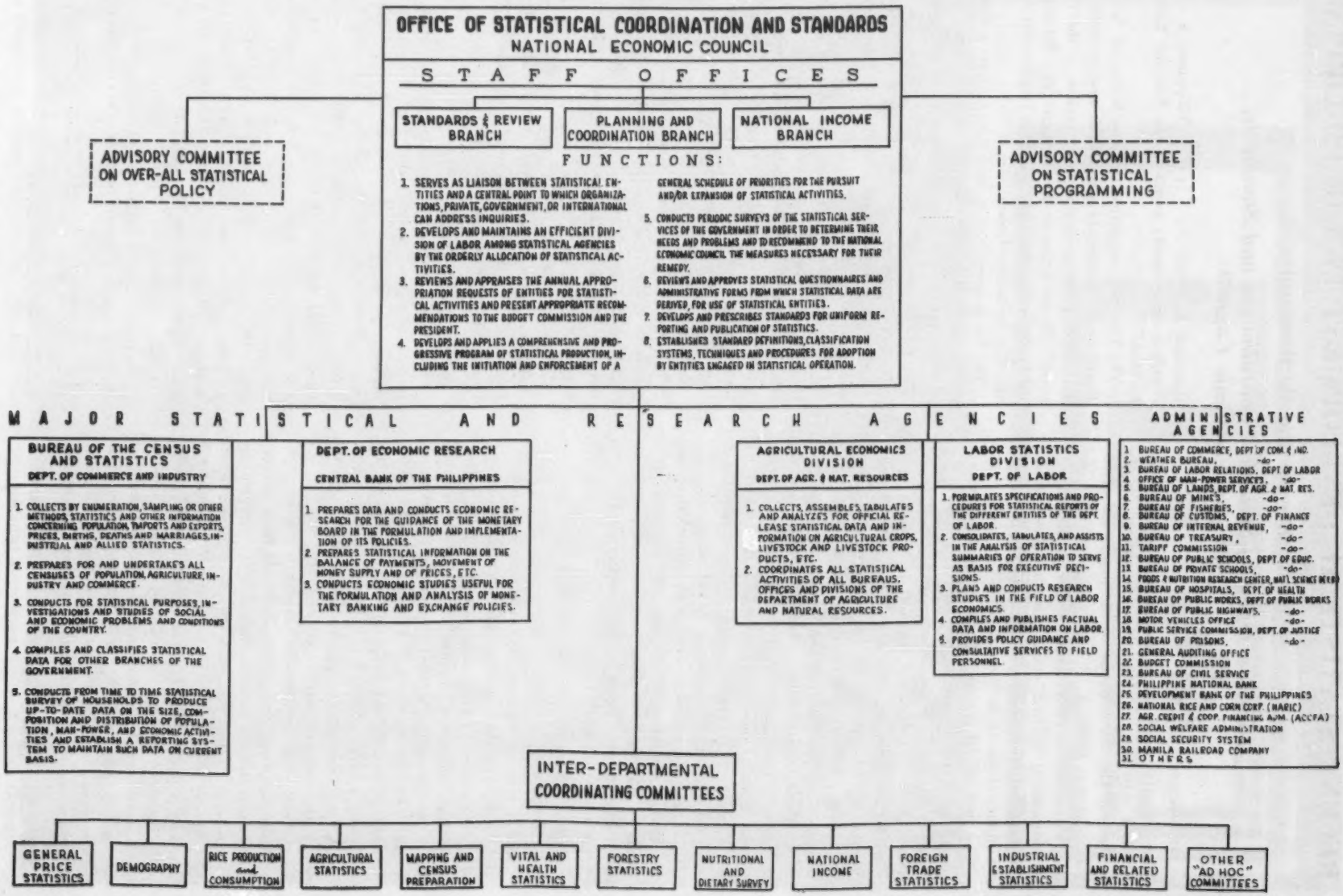
There are four major statistical and research agencies of the government under the present system. These agen-

[1] Vicente Mills, "The Population of the Philippines, Its Growth and Prediction." *Philippine Statistician*, January 10, 1953.

[2] Aurelio Montinola, "Sound Statistics for Economic Planning and Development." An Address before the Philippine Statistical Association on March 21, 1953.

[3] Donald A. Jensen, "Proposed Reorganization of Statistical Services in the Government." *Philippine Statistician*, March 1955.

Chart 1 · STATISTICAL ORGANIZATION OF THE PHILIPPINES



cies are the Bureau of the Census and Statistics of the Department of Commerce and Industry, the Department of Economic Research of the Central Bank, the Agricultural Economics Division of the Department of Agriculture and Natural Resources, and the Labor Statistics Division of the Department of Labor.

In addition, there are eighty other units in the administrative agencies of the government that produce statistical data and information as by-products of these agencies' administrative and regulatory functions. Chart 1 shows the statistical organization of the Philippines today.

3. *Programming government statistical activities*

The Office of Statistical Coordination and Standards has played a major role in the Philippine program of statistical development. One of the specific functions assigned to the OSCAS in accordance with the provisions of Executive Order 119 was the "development and application of a comprehensive and progressive program of statistical production, including the initiation and enforcement of a general schedule of priorities for the pursuit and/or expansion of statistical activities." Immediately after the OSCAS started operations on January 2, 1956, a comprehensive program of statistical development was prepared. Two committees, created by the Chairman of the NEC in February 1956, assisted this office in the formulation of the program. The Advisory Committee on Over-all Statistical Policy, composed of prominent representatives of business, civic, professional and technical groups, advised the OSCAS on policies concerning the development of the statistical program, particularly on (a) the relation of projects undertaken by the OSCAS with respect to the purposes for which it was created, and (b) the general order of development of statistics in the country. The Committee on Statistical Programming, composed of the heads of various statistical entities of the government advised the OSCAS on (a) the determination of the order of priority on the type of data needed for government planning and national development, and (b) the development and application of standard definitions, classifications and procedures for use by all government agencies.

Several statistical projects and activities designed to improve the overall statistical operations of the government were initiated. A major project under the program was the Philippine Statistical Survey Project. The background and authority for the statistical project, the objectives, the administrative arrangements as well as the various statistical activities implemented under this project have already been described by Milton D. Lieberman.[4] In brief, the Philippine Statistical Survey Project was a joint undertaking of the Philippine Government and the International Cooperation Administration of the United States. The project had two objectives; (1) to produce up-to-date statistical data on the size, composition, and distribution of the population, manpower supply and demand, and economic activities of the country and establish reporting systems to maintain such data on a current basis, and (2) to improve the overall statistical operations of the Philippine Government. By the terms of the agreement the Philippine Government committed itself to finance the project with a total outlay of P2,500,000 for its duration while the United States Government agreed to furnish the services of a U. S. statistical team composed of five experts to provide technical assistance to accomplish the objectives of the project.

About fifteen project activities with an estimated cost of more than two million pesos were carried out from 1956 to 1958. A list of the implementing government statistical agencies with the activities carried out under the operating responsibility of each is shown below:

1. Bureau of the Census and Statistics—The Philippine Statistical Survey of Households, the Philippine Statistical Survey of Manufactures, Improvement of Vital Statistics, Improvement of Foreign Trade Statistics, and Mapping and Census Preparation.

2. Agricultural Economics Division, Department of Agriculture and Natural Resources—Improvement of Agricultural Statistics (updating of agricultural statistics, capital formation in agriculture, cost of production of selected crops and livestock, improvement of sample frame for agricultural surveys, prices received and prices paid by farmers).

3. Institute of Nutrition—Nutrition and Dietary Survey.

4. Bureau of Forestry — Improvement of Forestry Statistics.

5. Office of Statistical Coordination and Standards, National Economic Council—Improvement of National Income Estimates, etc.

Most of the budgets of these activities have been incorporated into the regular departmental appropriations of the above bureaus and offices.

In addition to the activities carried out under the Philippine Statistical Survey Project, there were other important projects undertaken within the framework of the aforementioned plan of statistical development.

The U.N.-NEC Demographic Pilot Study was started in 1957 by the OSCAS of the NEC in cooperation with the U.N. Statistical Office. The study aimed to analyze the data from the Philippine Statistical Survey of Households and other sources to provide important demographic information needed in the formulation of the country's economic and social development program. It also aimed to demonstrate methods of analysis of inter-relationships of the population and economic and social factors.

Another activity implemented under the program was the Presidential Assistant on Community Development (PACD) Evaluation Survey of 1958. The purposes of this survey were (a) to establish a baseline to pinpoint present living conditions in selected areas in the Philippines covered by community development programs, and (b) to measure from this baseline, after a suitable period of time, such improvements in rural living as can be objectively ascertained to be the result of the program.

The Raw Material Resources Survey project was conducted to compile statistical materials and related infor-

[4] Milton D. Lieberman, "Philippine Statistical Program Development and the Survey of Households," *Journal of the American Statistical Association*, vol. 53 (March, 1958).

mation concerning existing and available raw material resources of the country in terms of quantity, location and commercial feasibility for economic planning and the formulation of policies concerning utilization and conservation of these resources. Space does not permit the presentation of other activities less comprehensive in scale but equally important in the program.

Committee work proved very useful in planning, assessing progress, and reviewing the results of statistical activities. It also provided the means to coordinate discussions of the various problems relating to the program. Among the various interdepartmental committees convened by the OSCAS to provide technical guidance on specific areas were the following:

a. Committee on Survey Design and Estimation Procedures—This Committee was responsible for the development of the sample design of the various projects and for constant study of the same to effect improvements and other changes to increase the adequacy and reliability of the data collected.

b. Committee on Demography—This Committee was concerned mainly with population estimation and population projections.

c. Committee on Improvement of Agricultural Statistics—This Committee was responsible for the planning and review of the various statistical projects implemented by the Agricultural Economics Division of the Department of Agriculture and Natural Resources.

d. Committee on Vital and Health Statistics—The objective of this Committee was the facilitation of exchange of information and views by the various national agencies responsible for the collection and analysis of vital and health statistics.

e. Committee on Foreign Trade Statistics—This Committee was convened to develop and revise through intensive work of subcommittees a standard commodity classification system adequate to meet the needs of the National Economic Council, the Central Bank of the Philippines, the Tariff Commission and other government and private agencies.

f. Committee on Forestry Statistics—This Committee was created to evaluate methods and procedures employed in collecting data and information on the forest resources and recommend measures to effect improvement of the forestry statistics in the country.

g. Committee on National Income—This group tackled the problems of developing adequate concepts, definitions and methods employed in estimating the nation's output and the development of new sources of data for national income estimation.

h. The Sub-Committee on the Programming and Preparations for the 1960 Censuses of Population (including Housing) and Agriculture—This group was convened to develop plans, questionnaires and procedures needed in the 1960 Census Program.

4. *Statistical Training*

The success of a program of statistical development depends to a great measure on the availability of personnel with adequate statistical education, training, skill and experience. Increasing attention, therefore, has been given by the government to the problem of training statisticians. The Philippine government has utilized the facilities for statistical training offered by the University of the Philippines Statistical Center which was organized in 1954 under the joint sponsorship of the Republic of the Philippines and the United Nations. The Center provides the training of statistical workers in the government service as well as the opportunity for the study of statistical science and methodology for the public in general.

The chief instruments utilized by the Center to carry out the functions entrusted it are academic instruction, in-service training, experiment and research and discussion and consultation. The Center has admitted 468 students since the start of its operations. Of these, 13 have graduated either with a Master of Arts in Statistics or Master of Science in Statistics degree and 128 students have completed at least ten units of statistics. The Center has conducted ten in-service training sessions for personnel of government departments and private entities engaged in statistical activities. In-service training for census supervisors who participated in the 1960 Census program was among these.

The Philippine Government has also sent during the period from 1956 to 1958 thirty trainees from various government entities abroad to pursue further studies in statistics. Under the ICA-NEC program nineteen government statisticians were sent to the United States to study and observe in the following fields: (1) industrial and economic statistics, (2) census methods and statistical operations, (3) statistical standards and organization, (4) national income measurement, (5) agricultural statistics, (6) methods and techniques on the construction of price indices, (7) balance of payment statistics, and (8) labor statistics, etc.

Under the U.N. Technical Assistance Program, two statisticians were sent as participants to the U.N./FAO Training Center in Asia and the Far East held from September to December, 1958 in Tokyo, Japan. From 1957 to 1958 two others were sent to the Demographic Training and Research Center at Chembur, Bombay, for population studies. In addition to these, six statisticians from various statistical offices were sent in 1958 as participants to the 12th term of the International Statistical Education Center at Calcutta, India.

These training programs have produced a small group of professional statisticians and related statistical personnel with adequate training to meet to a great extent the requirements of the program of statistical development in the country. Local facilities for training are being expanded and fuller use of the training and consultation facilities of international technical cooperation programs are presently being made.

5. *Conclusion*

The most significant statistical developments in the Philippines during the last few years may be summarized as follows:

(Continued on page 32)

THE TEACHING OF STATISTICS IN SPAIN

by F. Azorin Poch*

Universidad Central de Venezuela

and

Universidad de Madrid

In Spain, as in other countries, there are well-known pioneers in the teaching of Statistics. Some, like Juan de Caramuel, a Cistercian monk of the 17th century and author of *Apologema pro doctrina de Probabilitate*, taught mathematics with a penchant for the concepts of uncertainty and randomness.

The first chair of General Statistics was established in the "Sociedad Económica Matritense" (Madrid Economic Society), in 1852 and was occupied by J. M. Ibañez. Books on statistics were written in the 19th century by J. M. Ibañez, M. Salva, A. Ramirez, M. Carreras, J. M. Piernas, S. Adame and M. Mínguez. Mínguez was awarded a prize in the 9th International Congress of Hygiene and Demography. On the whole, these books are mixtures of geography and descriptive statistics with a few computations of averages and percentages in the coverage of simple population and economic problems.

Some of the books were intended for the instruction of officials working in the Central Statistical Bureau, now "Instituto Nacional de Estadística" (I. N. E.), the centennary of whose foundation was celebrated in 1956. The tradition of teaching and analysis within the administrative framework was later continued by Martiañez, Martínez Román, De Miguel, Ros and others, and more recently by Cansado, about whom more will be said later.

In 1857, a new curriculum was established for the School of Commerce of Madrid, dividing the studies into a lower and a higher degree. In the lower degree a course in Geography and one in Industrial and Commercial Statistics were introduced. In following years, several changes and renaming took place but the teaching remained essentially the same, and was usually accompanied by Economic Geography. It was not until 1912 that courses in Mathematical Statistics and the Theory of Insurance were established for the higher degree. The latter were devoted mainly to actuarial mathematics.

It seems that the first course in Mathematical Statistics at the University of Madrid was given by Professor Esteban Terradas (1883-1950) in 1931-32. Although Professor Terradas' main interest was in mathematical physics, he was attracted by the wide scope of possibilities of statistical methods. His teaching was based on the works by Darmois, Rietz, von Mises and Fry, and he gave what was then a comprehensive survey of probability calculus and statistics, with special application to Physics and Engineering. In 1933, he was also the first to lecture on the theory of small samples.

The name of Professor José Antonio de Artigas should also be mentioned as one of the first who showed active interest in mathematical statistics and its connections with other scientific domains. He taught in the Escuela de Ingenieros Industriales and was elected first President of the Sociedad Española de Estadística.

In 1934, the first chair of Mathematical Statistics was established in the Faculty of Sciences (Section of Mathematics) of the University of Madrid. It was occupied by Professor Olegario Fernández Baños until his untimely death in 1945. He was the author of *Tratado de Estadística*, which contains many valuable references. His book included theorems on stochastic variables and large numbers, standard distributions, sampling theory, analysis of variance, simple and multiple correlation and regression. It also contained subjects in economic statistics, such as price indexes, time series, interpolation, curve fitting and mortality tables and laws. The book was published shortly before his death, although mimeographed copies based on class notes were circulating several years before. By that time Professor J. M. Orts was also teaching mathematical statistics, in addition to his regular duties as Professor of Mathematical Analysis at the University of Barcelona. Fernández Baños was the first to teach statistics in the Faculty of Economics, created in 1944.

His successor, Professor Sixto Ríos, was appointed in 1948 to the same chair in the Faculty of Sciences. The curriculum was subsequently divided into Calculus of Probability and Mathematical Statistics. Ríos had already a considerable record of achievements in pure mathematics, and brought with him the fresh habits of rigorous mathematical thinking.

The present "Instituto de Investigaciones Estadística" (I. I. E.), which was then a Department of the Institute of Mathematics in the "Consejo Superior de Investigaciones Científicas" (High Council on Scientific Research), was founded under the direction of Professor Ríos. The visits of outstanding foreign statisticians to give lectures and seminars in Madrid was inaugurated with an invitation made to Doctor J. Wishart in 1947 by the "Instituto de Investigaciones Agronómicas" (Institute of Agricultural Research) in which Professors Anós, Calvet and Zulueta were working in Statistics applied to the design of experiments.

In 1949, Professor H. Wold arrived from Upsala, invited by the recently established Department. His visit was one of the most significant features in the statistical development in Spain. As a consequence of the seminar conducted by Wold, a scientific periodical *Trabajos de Estadística*, was inaugurated and has appeared three times a year since 1950. Many other visiting lecturers have come to the I. I. E. on different occasions. They include, in successive years, Professors H. Cramér, M. Fréchet, P. C. Mahalanobis, R. Fortet, F. J. Anscombe, D. J. Finney, L. J. Savage, J. Neyman and others.

* The author expresses his thanks to Professor Sixto Rios and Angel Vegas for their kind information on some data used in the present article.

In 1949, the Instituto Nacional de Estadística (INE) (Central Statistical Bureau) organized a "First Course on Statistical Sampling and Its Foundations" under the leadership of Professor J. Ros, now its Vice-Director. This course was based mainly on the experience of a visit made to the Bureau of the Census in the United States by Doctor E. Cansado. The course had the cooperation of many people seriously interested in statistical techniques, some of whom, like Ríos and Anós, did not belong to the I. N. E.

As a result of this success, new and broader courses in statistics and its applications were organized at the University of Madrid. After three years they were given official recognition through the creation of the School of Statistics in 1952. This school was founded on an inter-faculty basis, though it was sponsored directly by the Faculties of Sciences and Economics. The creation of this school was generally welcomed and considered to fill a real gap. The structure of the twelve Spanish Universities makes the development of inter-disciplinary studies difficult. This also is the case in some other countries.[1] It was not easy for students of faculties whose curricula did not include statistics to take this subject in the regular way. The Head of the School is Professor Sixto Ríos. There are a Higher and a Lower degree, the first one divided into two sections, Mathematical Statistics and General Statistics.

Two years are required to receive a diploma in Mathematical or General Statistics and one year is required in the lower grade to obtain a Certificate in Statistics. The higher grade was intended for university graduates or engineers and only those with a degree in sciences, economics or engineering could take the diploma in Mathematical Statistics.

The required subjects which run for two years, for the Diploma in Mathematical Statistics are:

(1) Mathematics. (Sets of Points, Theory of Measure and Integral, Matrix Algebra, Finite Differences, Functional Spaces, etc.). This subject is not compulsory for those who have already taken similar courses in the University.

(2) Mathematical Statistics. (Probability Theory, Inference Theory.) The books used include: Feller's *An Introduction to Probability Theory and Its Application* and Cramér's *Mathematical Methods of Statistics.*

(3) Statistical Methods. In addition to the courses mentional above, four elective courses in applications must be taken. The electives offered usually change from year to year, and might include subjects such as Population Statistics, Economic Statistics, Industrial Statistics, Sampling Techniques, Biological and Agricultural Statistics, Actuarial Statistics, Econometrics, Medical Applications, Statistics Applied to Psychology and Pedagogy, etc.

The Diploma in General Statistics also requires two years of mathematics (Analytical Geometry, Differential and Integral Calculus, Matrices, Quadratic Forms, etc.) It includes two years of General Statistics and Statistical Methods and one year of Mathematical Statistics. The level of the latter course is not higher than Mood's *Introduction to the Theory of Statistics.* Five elective courses in applications are also needed to obtain the Diploma.

For the certificate in the Lower Grade, only a Secondary Studies Certificate is required. The subjects in this grade are General Mathematics, Statistical Methods and General Statistics, with three courses in applications. The certificate may be taken in one academic year.

Besides the Faculties of Sciences (Section of Mathematics) there are others which have statistics in their curricula. The "Facultad de Ciencias Políticas, Económicas y Comerciales" (Faculty of Economics and Political Sciences) offers Statistics and Statistical Methods and Econometrics. Other institutions of higher learning, like the "Escuelas Superiores de Ingenieros" (School of Engineering), especially the Schools of Agricultural Engineering and Industrial Engineering, which formerly had statistics included with administration, accounting, etc., are now giving more space and interest to statistical applications. In addition, a number of institutions are improving or introducing statistical courses. Even the School of Journalism established a four months course on Statistics for future editors and correspondents.

An important decision was the introduction in the Secondary School, in its last or Pre-University year, of a program with the following description:

> *Examples of biological, physical, chemical, technical, etc. phenomena in which statistical concepts appear in a natural way. Attributes, graphical representation, frequency tables, calculation of mean values and dispersion measures. Notions of bidimensional statistical variables; Regression and correlation coefficients. Index numbers. Idea of the binomial and normal distributions, and its fitting to samples. Use of normal probability paper. Elementary notions of the Poisson distribution. Notions on sampling theory. Simple examples of estimation and inference problems with applications to Physics, Chemistry, Biology, etc.*

Many of these advances are due to the growing body of cultivators of statistics at the university level; A. Vegas, G. Arnaiz and A. Alcaide (Professors of Statistics in the Faculty of Economics) J. Béjar and P. Zoroa (research workers in the I. I. E.), J. Royo and J. Tena (devoted to the statistical aspects of Pedagogy), E. Blanco (main promoter of statistical quality control), R. Sales, J. Romaní, J. Gil Pelaez and others.

However, the progress in statistical diffusion is not being made without some resistance. Even in the I. N. E., officials have criticized the "new fashions" and its influence on the program for admission or competitive examination to the Civil Service of Statistics. It must be acknowledged that most of the program's contents remains without actual application in the current work of the Statistical Bureau.

If the present situation does not justify a feeling of complacency, there are on the whole tendencies which can exert a favorable effect in the development of statistical teaching. On the one hand, there is a growing need for

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[1] See, for example, William Wasserman, "The Teaching and Use of Statistics in Turkey," *The American Statistician*, vol. 12, no. 2 (April, 1958).

THE SUPPLY OF AND DEMAND FOR STATISTICIANS

INTRODUCTION

by

Donald C. Riley
***Executive Director*, ASA**

Herewith is a condensed record of an interesting symposium on the chronic and growing problem of the shortage of statisticians. This discussion was held during the Association's Annual Meeting in December 1959. A somewhat similar stock-taking is reproduced in the February 1958 issue of THE AMERICAN STATISTICIAN and another occurred during the 1960 Annual Meeting at Stanford University. Perhaps one of the most baffling problems that always occurs is that of an effective recruiting and placement service. This requires a professional staff member of high qualifications and many contacts and yet with the extreme scarcity of statisticians and the very restricted ASA budget, this service is hard to justify on any basis other than the news items and advertisements now appearing in each issue of THE AMERICAN STATISTICIAN.

Those who participated in the 1959 symposium were:

Albert H. Bowker, Stanford University
Gertrude Cox, Research Triangle Institute
Joseph F. Daly, Bureau of the Census
Churchill Eisenhart, National Bureau of Standards
Robert Ferber, University of Illinois
David L. Futransky, Bureau of the Census
George W. Mitchell, Federal Reserve Bank of Chicago
David Novick, Rand Corporation
Mary E. Robinson, Brookings Institution
Abe Rothman, Department of Labor
Donald C. Riley, *Chairman*, Office of Statistical Standards

RESUME

by

David L. Futransky
Bureau of the Census

1. The demands of Government and the requests received by the universities are two impelling indicators of a critical shortage of statistically trained people. In discussing shortages, however, it is important to distinguish between those positions which require as a pre-requisite formal academic training in mathematics and statistics and those for which much of the necessary training can be provided on the job (in some cases only on the job).

   It was the recognition of this distinction that enabled one large user of statisticians to staff successfully for a rapidly expanding operation in positions which had traditionally been filled with mathematics and statistics majors. This distinction has merit also by helping to better match talents to tasks thereby increasing job effectiveness in a market where statisticians are scarce, and promoting a higher level of job satisfaction.

2. The following suggestions were made as ways of increasing the supply of statistically trained people:

   a—Greater inducement and encouragement for more graduates to go into teaching statistics.

   b—More emphasis placed on undergraduate degrees in statistics.

   c—Encourage minors in statistics or at least broaden the various business, economic and other applied curricula to allow for two or three courses in statistics. A recent survey estimated that among the 1957 Bachelor degree graduates with majors in economics only 10% met the entrance grade education requirements for Statisticians in the Federal Service—15 semester hours of mathematics and statistics of which at least 6 semester hours are in statistics.

   d—A restructuring of the Ph.D. requirement in applied fields to allow for some combination of mathematics and statistics to substitute for present foreign language requirements. Somewhat allied to the foregoing but certainly more controversial is the suggestion to provide for a degree intermediate between the Masters and the Ph.D. which would be directed towards giving the holder entree to the teaching profession.

   e—The American Statistical Association should sponsor programs to acquaint students at the high school level and especially those in the early college years with the subject of statistics. One way to implement this would be for statisticians to take the initiative to insure that a few well chosen examples of the effective use of statistical principles and techniques are incorporated into the lecture and laboratory materials of the applied subject matter fields.

   The introduction of a few simple statistical tools (e.g. sign test, Wilcoxon's rank-sum, distribution—free confidence limits) would add elegance to the lectures and increase the value of the laboratory work (e.g. through revealing the presence and magnitude of observer differences).

   f—To attract and cultivate talent to the statistics area, greater attention should be given to provide the same incentive of professional recognition and acclaim for the statistical practitioner as is usually provided for those highly skilled in mathematical derivation.

   g—Advantage should be taken of the steadily increasing enrollments in mathematics by recruiting actively among the mathematics majors for statistician positions. The Federal service has followed that practice in the new Mathematical Statistician examination which makes it possible for the mathematics majors to qualify with minimum course work in statistics.

3. Several comments were directed at improving communications within the profession:

   a—THE AMERICAN STATISTICIAN should either carry a placement column in each issue or such information should be mailed with the JOURNAL as a

separate folder. Once a year listings could be provided of University people to contact in the recruitment of statisticians.

b—The Association has taken some steps to improve the communication problem. In assembling the 1958 Membership Directory the members were asked to classify their education and work experience into 18 fields of specialization, 26 fields of application and 8 major types of statistical activities. In order to facilitate the use of the data, special listings of members by each characteristic were prepared. Each listing showed the name of each member and all his characteristics.

These listings are available to anyone for the purpose of locating specialized statistical personnel.

c—Individual statisticians working on the job can do more than has been done in explaining and demonstrating basic statistical theory to physicists, economists, demographers etc., who already may have a good foundation in mathematics. Developing such statistical competence in persons already on the job may be the most effective way of minimizing job turnover among statisticians during a period of accute shortage.

4. In case there is some question about the need for statistically trained people, it may be pointed out that the banking industry has not yet awakened to the contribution statistical thinking can make to the industry. Banking is primarily oriented towards the accounting approach and except in the Federal Reserve Banks, has scarcely touched the kinds of essential analysis that can best be handled by statistically trained people.

5. Finally, the American Statistical Association should sponsor a serious and comprehensive study of the statistical manpower question. Such a project could relate supply to the demand and to changes in demand for the various types of statisticians as well as for other specialists who can function more effectively in their own field if equipped with a statistical background. The project would contribute to a better understanding of the role of the marketplace in the whole specialized manpower picture. Such a study is not something that can be done off-hand but surely the Association should be able to find the necessary factual material and economic insight within the ranks of the profession.

TEACHING STATISTICS IN SPAIN—CONTINUED FROM PAGE 24

efficient techniques in obtaining statistical information for government agencies interested in coordination and planning. Some decisions require more than classical mathematics. On the other hand, there is the existence of a sector of private industry looking for advice in Operational Research which is being supplied by a few specialized enterprises. Both of these lines may give more suppleness and relevant content to statistical teaching, liberating it from rigid academicism or ineffectual repetition. The training and experience received by those who have been studying or working abroad have had a significant effect.

Finally, mention should be made of the extension of statistical teaching to other Spanish-speaking countries. Professor E. Cansado in Chile (Inter-American Centre for Instruction in Economic and Financial Statistics) "has had the greatest influence" [2] as Professor of General Statistics. Professor S. Ríos went to Venezuela in 1955 under UNESCO's Technical Assistance Program to initiate the School of Statistics of the Universidad Central. With him went the author and, afterwards, A. Repiso. Another Spanish statistician, S. Ferrer, is now in Bogotá, Colombia.

Although it was a heavy loss for the development of statistical teaching in Spain when Cansado left Madrid, it may be hoped that in the long-run the interrelation among Spanish and Latin-American statisticians will be of mutual advantage to the countries concerned.

[2] Simon Rottenberg, "The Teaching of Statistics in Chile," *The American Statistician*, vol. 12, no. 2 (April, 1958).

QUESTIONS AND ANSWERS

Edited by ERNEST RUBIN
U. S. Department of Commerce
and American University

Samuel Pepys, Isaac Newton, and Probability*

Discussion by Emil D. Schell

The lost art of letter writing is certain to deprive future generations of scholars the pleasure and satisfaction of discovering interesting and instructive insights about the subjects they are studying. The role that personal correspondence played in the development of mathematics, science and philosophy, especially prior to 1850, is incompletely realized today.

We are privileged to examine a sequence of letters in which Newton answered a probability question asked by Pepys. I wish to thank Mr. Emil D. Schell of the International Business Machines Corporation for preparing the following discussion.

It is always a little surprising to learn that people famous in quite different fields were acquainted. John Milton's visit to Galileo in 1637 is an instance of this kind. The appearance of the imprimatur of S. Pepys, President of the Royal Society, on the title page of Newton's *Principia* certainly suggests that Newton and Pepys were acquainted. The fact that Pepys consulted Newton by letter on a problem in probability, however, seems not to be generally known, especially to American statisticians. It is our purpose to present the highlights of this correspondence. (1)

Although most readers are familiar with Pepys and Newton, a review of their careers up to the time of the correspondence in 1693 provides a more distinct setting. Pepys advanced from an initial clerical position in 1660 to Secretary of the Admiralty by 1672. The diary, for which he is famous, covered only the first nine years of this period and was discontinued because of failing eyesight. After serving as Secretary for seven years Pepys was accused of participating in a Popish plot during the Titus Oates affair, one frequently compared to similar hysterias of our own time. After a year's imprisonment in the Tower of London, he was freed and exonerated, but deprived of his post. In 1682 he decommissioned the naval base in Tangier. Again in 1684 he was appointed Secretary of the Admiralty and at the same time elected President of the Royal Society. With the accession of William III he lost his Admiralty post for the second time. At the time of the correspondence he had already completed his *Memoirs of the Royal Navy* and was in his fourth year of somewhat active retirement.

Newton was born in 1642 and was Professor at Cambridge from 1669-1701. His work on the binomial theorem had been done in 1666. His *Principia* was published in 1687. Prior to the time of the correspondence he was already making frequent trips to London. Besides his interest in the Royal Society, visits to the city were prompted by his seat in Parliament as the Cambridge University representative. The political upheaval which closed Pepys' Admiralty career for the second time saddled Newton with handling "the delicate question of oaths after the revolution of 1688", a task which he performed in a manner that evoked the admiration of Keynes. (2) At the close of 1692 Newton appears to have had a severe nervous breakdown. He wrote Pepys a bewildering letter at this time, and Pepys was undoubtedly relieved to receive another asking him to disregard the first. It is possible at the time of the present correspondence that Newton had not yet fully recovered. Newton was still three years away from his appointment as Warden of the Mint, which led him to make a permanent move to London. (3)

In the first letter of the correspondence on the probability problem Pepys presents Mr. Smith, a writing master at Christ's Hospital. (4) Thomas Neale, also mentioned in Pepys' letter, was Master of the Mint (a position which Newton held later) and Groom-Porter to the King. He had proposed a public lottery to raise funds immediately needed; expenses of the lottery were to be met by revenues from a new salt tax duty. The proposal was adopted in 1694.

In the opening letter (5), Pepys introduces Mr. Smith and proposes the problem:

Mr. Pepys to Mr. Isaac Newton

Wednesday, November 22, 1693

Sir,—However this comes accompanyed with a little trouble to you, yet I cannot but say that the occasion is welcome to me, in that it gives me an opportunity of telling you that I continue most sensible of my obligations to you, most desirous of rendring you service in whatever you shall think me able, and noe lesse afflicted when I hear of your being in towne without knowing how to wait on you till it be too late for me to doe it.

This sayd, and with great truth and respect, I goe on to tell you that the bearer, Mr. Smith, is one I beare great goodwill to, noe less for what I personally know of his general ingenuity, industry, and virtue, than for the general reputation he has in this towne (inferiour to none, but superiour to most) for his maistery in the two points of his profession, namely, *Faire-Writeing* and *Arithmetick*, soe farr (principally) as is subservient to Accountantship. Now soe it is, that the late project (of which you cannot but have heard) of Mr. Neale the Groom-Porter his lottery, has almost extinguished for some time at all places of publick conversation in this towne, especially among men of numbers, every other talk but what relates to the doctrine of determining between the true proportions of the hazards incident to this or that given chance or lot.

On this occasion it has fallen-out that this gentleman is become concerned (more than in jest) to compass a solution that may be relyed-on beyond what his modesty will suffer him to think his owne alone, or any less than Mr. Newton's to be, to a question which he takes a journey on purpose to attend you with, and prayed my giving him this introduction to you to that purpose, which, not in common friendship only but as due to his soe earnest an application after truth, though in a matter of speculation alone, I cannot deny him, and therefore trust you will forgive me in it, and the trouble I desire you to beare at my instance, of giving him your decision upon it, and the processe of your coming at it. Wherein I shall esteem myselfe on his behalfe greatly owing to you, and remaine, Honoured Sir, Your most humble and most affectionate and faithful servant,

S. P.

* For related discussions on probability in this section, see *The American Statistician* of December 1955, "Instructive Probability Problems" and December 1958, "Probability for the General Reader (and Others)."

The Question

A—has 6 dice in a box, with which he is to fling a 6.
B—has in another box 12 dice, with which he is to fling 2 sixes.
C—has in another box 18 dice, with which he is to fling 3 sixes.
Q—Whether B and C have not as easy a taske as A at even luck?

Nearly any practicing statistician will feel a high degree of kinship with Newton in his stress on formulation in his reply. He is mostly concerned with whether he has understood the question: Are A, B and C to throw independently? Are *exactly* 1, 2 and 3 sixes involved or *at least* 1, 2 and 3 sixes? Is it understood it is expectation that is involved and not the outcome of a particular throw? Apparently, Mr. Smith has not been of much help in answering these questions. Perhaps he was confused by the phrase "even luck" in the original question or by Newton's explanation of why A had the best expectation. The reader may draw his own inference from Newton's reply:

Mr. Isaac Newton to Mr. Pepys

Cambridge, November 26, 1693

Sir,—I was very glad to hear of your good health by Mr. Smith, and to have any opportunity given me of shewing how ready I should be to serve you or your friends upon any occasion, and wish that something of greater moment would give me a new opportunity of doing it so as to become more useful to you than in solving only a mathematical question. In reading the question it seemed to me at first to be ill stated, and in examining Mr. Smith about the meaning of some phrases in it he put the case of the question the same as if A plaid with six dyes tille he threw a six and then B threw as often with 12 and C with 18,—the one for twice as many, the other for thrice as many sixes. To examin who had the advantage, I tooke the case of A throwing with one dye and B with two, the former till he threw a six, the latter as often for two sixes, and found that A had the advantage. But whether A will have the advantage when he throws with 6 and B with 12 dyes I cannot tell, for the number of dyes may alter the proportion of the chances considerably, and I did not compute it in this case, the problem being a very hard one. And indeed, upon reading the question anew, I found that these cases do not come within the question. For here an advantage is given to A by his throwing first till he throws a six; whereas the question requires that they throw upon equal luck, and by consequence that no advantage be given to any one by throwing first. The question is this:—

A has 6 dyes in a box, with which he is to fling a six.
B has in another box 12 dyes, with which he is to fling two sixes.
C has in another box 18 dyes with which he is to fling 3 sixes.
Q Whether B and C have not as easy a task as A at eaven luck?

If this question must be understood according to the plainest sense of words, I think that sense must be this:—

1. Because A, B, and C are to throw upon equal luck, there must be no advantage of luck given to any of them by throwing first or last, or by making any thing depend upon the throw of any one which does not equally depend on the throws of the other two. And therefore to barr all inequality of luck on these accounts, I would understand the question as if A, B, and C were to throw all at the same time.
2. I take the most proper and obvious meaning of the words of the question to be that when A flings more sixes than one he flings a six as well as when he flings but a single six and so gains his expectation, and so when B flings more sixes than two and C more than three they gain their expectations. But if B throw under two sixes and C under three, they miss their expectations, because in the question 'tis exprest that B is to throw 2 and C three sixes.
3. Because each man has his dyes in a box ready to throw, and the question is put upon the chances of that throw without naming any more throws than that, I take the question to be the same as if it had been put thus upon single throws.
   What is the expectation or hope of A to throw every time one six at least with six dyes?
   What is the expectation or hope of B to throw every time two sixes at least with 12 dyes?
   What is the expectation or hope of C to throw every time three sixes or more than three with 18 dyes?
   And whether has not B and C as great an expectation or hope to hit every time what they throw for as A hath to hit his what he throws for?

If the question be thus stated, it appears by an easy computation that the expectation of A is greater than that of B or C; that is, the task of A is the easiest. And the reason is because A has all the chances of sixes on his dyes for his expectation, but B and C have not all the chances on theirs. For when B throws a single six or C but one or two sixes, they miss of their expectations. This Mr. Smith understands, and therefore allows that if the question be understood as I have stated it, then B and C have not so easy a task as A; but he seems of opinion that the question should be so stated that B and C as well as A may have all the chances of sixes on their dyes within their expectations. I do not see that the words of the question as 'tis set down in your letter will admit it, but this being no mathematical question, but a question what is the true mathematical question, it belongs not to me to determin it. I have contented my self therefore to set down how in my opinion the question according to the most obvious and proper meaning of the words is to be understood, and that if this be the true state of the question, then B and C have not so easy a task as A. But whether I have hit the true meaning of the question I must submit to the better judgments of your self and others. If you desire the computation, I will send it you. I am, Sir, Your most humble and most obedient servant,

Is. Newton.

Pepys appears to have had difficulty in meeting Mr. Smith after receiving Newton's reply. He indicates plainly that he understands the question to be as formulated by Newton, but finds it difficult to understand why A has the best chance of success. To make certain they are in agreement, he rewords the question so as to make the stakes high—the life of a condemned man:

Mr. Pepys to Mr. Isaac Newton

York Buildings, December 9, 1693

Sir,—It was my fortune to bee out of towne at Mr. Smith's returne, so as I received the favour of your letter left for mee by him, but have without successe expected every day to see him since my being back, that I might the more particularly render you with my thankes (which I doe most respectfully pay you) my acknowledgments for the satisfaction you are therein pleased to give mee upon the question I troubled you with by him. I am suspitious hee is not well, that I have been soe long without his visit, or that hee is not yet informed of my being returned. I will not however longer respite my observing to you that the construction hee would putt upon the question (and which I would the rather have discoursed with him on, before my offering you any thoughts of mine upon it) seems no more to mee than I find it does to you in any wise warrantable from the terms of it; I carrying about mee just the same notion of its meaning that you doe, viz., How much more or lesse expectation A may (with equal lucke) reasonably have of throwing at one or every throw one sixe at least with six dyes, than B two sixes with twelve, or C three with eighteen dyes?

Now if this wording of the question sorts as well with your conceptions of it as I have endeavoured to make them speak mine, then I discerne your resolution to come clearly up to the question in the terms I understood it in, and that you give it in favour of the expectations of A, and this (as you say) by an easy computation. But yet I must not pretend to soe much conversation with numbers as presently to comprehend as I ought to doe all the force of that which you are pleased to assigne for the reason of it, relating to their having or not having the benefit of all their

chances; and therefore, were it not for the trouble it must have cost you, I could have wished for a sight of the very computation. But I have abundant reason to sitt downe (as I doe) without hesitancy under your determination, rather than keep-up an enquiry that I have already given you more interruption by than I can reasonably expect your excuse for.

I must confesse, were I now (after soe much chawing of the question) to begin my pursuit afresh after a solution to it, I think I should avoid some of the ambiguitys that commonly hang about our discoursings of it, by changing the characters of the dice from numbers to letters, and supposing them instead of 1, 2, 3, etc., to bee branded with the 6 initiall letters of the alphabet A, B, C, D, E, F. And the case should then bee this:

Peter a criminal convict being doomed to dye Paul his friend prevails for his having the benefitt of one throw only for his life, upon dice soe prepared; with the choice of any one of these three chances for it, viz., One F at least upon six such dice. Two F's at least upon twelve such dice, or Three F's at least upon eighteen such dice. Question:—Which one of these chances should Peter in this case choose?

I have the rather pitched upon this method of stating it, for the rendring it receptive of as simple and succinct an answer as (for the answerer's ease) I could. And therefore though I can't absolve my selfe of impertinence in the offering it, yet if you shall please, to what you have already indulged mee in it, to throw-in one act of kindnesse more, and tell mee your thought in the matter as thus drest, without creating more worke to your selfe in your reply than by giving it mee in either of these 2 words, the First—The Second—or the Third; I shall yet think I have asked too much, and rest ever, Your true honorer, and most faithfull humble servant,

S. Pepys.

Those who see philosophical difficulties in applying probability to the outcome of a single event will be interested to note that Newton sees none. He describes the method of his computation to Pepys and works out the stakes that each player should pay to enter the game:

Mr. Isaac Newton to Mr. Pepys

Cambridge, December 16, 1693

Sir,—In stating the case of the wager you seem to have exactly the same notion of it with me; and to the question which of the three chances should Peter chuse were he to have but one throw for his life, I answer, that if I were Peter, I would chuse the first. To give you the computation upon which this answer is grounded, I would state the question thus:—

A hath six dice in a box, with which he is to fling at least one six for a wager laid with R.

B hath twelve dice in another box, with which he is to fling at least two sixes for a wager laid with S.

C hath eighteen dice in another box, with which he is to fling at least three sixes for a wager laid with T.

The stakes of R, S, and T are equal; what ought A, B, and C to stake, that the parties may play upon equal advantage?

To compute this I set down the following progressions of numbers:

Progr. 1	1	2	3	4	5	6	the number of the dice
Progr. 2	0	1	3	6	10	15	
Progr. 3	6	36	216	1296	7776	46656	the number of all the chances upon them
Progr. 4	5	25	125	625	3125	15625	the number of chances without sixes
Progr. 5	1	5	25	125	625	3125	
Progr. 6	1	10	75	500	3125	18750	chances for one six and no more
Progr. 7		1	5	25	125	625	
Progr. 8		1	15	150	1250	9375	chances for two sixes and no more

The progressions in this table are thus found: the first progression, which expresses the number of the dice, is an arithmetical one, viz., 1, 2, 3, 4, 5, etc.; the second is found by adding to every term the term of the progression above it, viz., $0 + 1 = 1$, $1 + 2 = 3$, $3 + 3 = 6$, $6 + 4 = 10$, $10 + 5 = 15$, etc.; the third progression, which expresses the number of all the chances upon the dice, is found by multiplying the number 6 into itself continually; and the fourth, fifth, and seventh are found by multiplying the number 5 into itself continually; the sixth is found by multiplying the terms of the first and fifth, viz., $1 \times 1 = 1$; $2 \times 5 = 10$, $3 \times 25 = 75$, $4 \times 125 = 500$, etc.; and the eighth is found by multiplying the terms of the second and seventh, viz., $1 \times 1 = 1$, $3 \times 5 = 15$, $6 \times 25 = 150$, $10 \times 125 = 1250$, etc.; and by these rules the progressions may be continued on to as many dice as you please.

Now since A plays with six dice, to know what he and R ought to stake I consult the numbers in the column under six, and there from 46656, the number of all the chances upon those dice expressed in the third progression, I subduct 15625, the number of all the chances without a six expressed in the fourth; and the remainder, 31031, is the number of all the chances with one six or above. Therefore the stake of A must be to the stake of R, upon equal advantage, as 31031 to 15625, or $\frac{31031}{15625}$ to 1 for their stakes must be as their expectations, that is, as the number of chances which make for them. In like manner, if you would know what B and S ought to stake upon 12 dice, produce the progressions to the column of twelve dice, and the sum of the numbers in the fourth and sixth progressions, viz., $244140625 + 585937500 = 830078125$, will be the number of chances for S; and this number subducted from the number of all the chances in the third progression, viz., 2176782336, will leave 1346704211, the number of chances for B. Therefore the stake of B would be to the stake of S as 1346704211 to 830078125, or $\frac{1346704211}{830078125}$ to 1.

And so by producing the progressions to the number of eighteen dice, and taking the sum of the numbers in the fourth, sixth, and eighth progressions for the number of the chances for T, and the difference between this number and that in the third column for the number of the chances for C, you will have the proportion of their stakes upon equal advantage. And thence it will appear that when the stakes of R, S, and T are units (suppose one pound or one guinea) and by consequence equal, the stake of A must be greater than that of B and that of B greater than that of C, and therefore A has the greatest expectation. The question might have been thus stated, and answered in fewer words: if Peter is to have but one throw for a stake of £1000 and has his choice of throwing either one six at least upon six dice, or two at least upon twelve, or three at least upon eighteen, which throw ought he to chuse, and of what value is his chance or expectation upon every throw, were he to sell it? Answer: Upon six dice there are 46656 chances, whereof 31031 are for him; upon 12, there are 2176782336 chances, whereof 1346704211 are for him; therefore his chance or expectation is worth the $\frac{31031}{46656}$ th. part of £1000 in the first case, and the $\frac{1346704211}{2176782336}$th part of £1000 in the second; that is, £665 0s 2d in the first case, and £618 13s 4d in the second. In the third case the value will be found still less. This I think, Sir, is what you desired me to give you an account of, and if there be any thing further you may command, Your most humble and most obedient servant,

Is. Newton.

Pepys frankly replies that he does not understand the computations of Newton. Furthermore, he finds it hard to believe the answer. Since B is throwing 12 dice, why can't he be regarded as two A's, and thus have at least as good an opportunity for success as A:

Mr. Pepys to Mr. Isaac Newton

December 21, 1693

Sir,—If to what you have done, and which I can in no wise sufficiently acknowledge your favour in, it could bee excusable to come once more to you upon the same errand, it should bee to ask you whether B's disadvantage (in his contest with A) bee any thing different under his obligation to fling 2 sixes at one

throw with twelve dyes, from what it would bee were hee to doe it at twice with 6 dyes at a time out of one box, or at once out of 2 boxes with that number in each; I being yet (I must owne) unable to satisfie my selfe touching the difference, i.e., how it ariseth, though at the same time you have putt mee beyond all doubt of A's having the advantage in the main of B. Nor must I conceal my being at the same loss how to comprehend, even when flinging 12 dyes at one throw out of a single box (the said dyes being tinged, halfe green, half blew) my being less provided for turning up a six with either of these different coloured parcels while flung together out of the same box, than were the six blew to bee thrown out of one box and the 6 green from another; in which latter case, I presume each of them severally would bee equally entituled to the producing of a six with A's six white ones, and by consequence of 2 when flung together. I am conscious enough that this is but fumbling, and that it ariseth only from my not knowing how to make the full use of your Table of Progressions; but pray bee favourable to my unreadiness in keeping pace with you therein, and give mee one line of further helpe. I am most thankfully, Dear Sir, Your obliged and most humble and faithful servant,

S. Pepys.

At this stage in Pepys published correspondence the computations of a friend of Pepys, Mr. George Tollett are given. Tollett considers B as throwing two separate sets of six dice and finds, mistakingly, that B has the same chance of success as A. Following Tollett's manuscript there is a summary of the computations of Newton and Tollett by J. J. of M. C. This is presumed to be John Jackson of Magdalene College, Pepys' nephew. At the close of his summary the nephew indicates that the discrepancy might be resolved most simply by raising the question of B throwing six dice of one color and six of another and asking "what reason can be alledged why hee should not have the same expectation upon each of those setts as A upon his single sett?" This is the same form in which Pepys had put the question in the preceeding letter. I do not present these computations, but their remarkable outcome is that Pepys' nephew finds the flaw in Tollett's computation and decides Newton's result is correct. This is before Newton's reply to Pepys' question is written. Newton begins by discussing Peter and James and almost as an afterthought mentions that Peter is A and James is B:

Mr. Isaac Newton to Mr. Pepys

Cambridge, December 23, 1693

Sir,—I take it to be the same case whether a man, to throw two sixes, have one throw with twelve dyes or two throws with six, but I reccon it an easier task to throw with six dyes one six at one throw than two sixes at two throws. Were James to have twice as many throws as Peter, and as often as he throws a six to win half as much as Peter doth by the like throws, and by consequence were James to win as (much) at every two such throws as Peter doth at every one such throw and half as much at every such single throw, their cases would be equal. But this is not the case of the wager. As the wager is stated, Peter must win as often as he throws a six, but James may often throw a six and yet win nothing because he can never win upon one six alone. If Peter flings a six (for instance) four times in eight throws, he must certainly win four times, but James upon equal luck may throw a six eight times in sixteen throws and yet win nothing. For as the question in the wager is stated, he wins not upon every single throw with a six as Peter doth, but only upon every two throws wherein he throws at least two sixes. And therefore if he flings but one six in the two first throws, and one in the two next, and but one in the two next, and so on to sixteen throws, he wins nothing at all, though he throws a six twice as often as Peter doth, and by consequence have equal luck with Peter upon the dyes. Mr. Smith, being sensible to this disadvantage, would put such a sense upon the question that James may in some cases have some advantage of a single six, but this I was not satisfied in because it seemed to me contrary to the words of the question. He represents that it was their meaning, when they laid the wager, that James could do twice as much with 12 dyes as Peter with six, which is true if all the chances of sixes be considered, but in the wager all the chances are not considered. It requires that B (here called James) throw two sixes with twelve dyes at once, or (which is all one) with six dyes at twice. One six is not considered. 'Tis a losing cast, and this gives A (here called Peter) the advantage. In what proportion A has the advantage I computed in my last. If there be anything else, pray command, Your most humble and most obedient servant,

Is. Newton.

A further letter appears by Mr. Tollett to Pepys dated February 8, 1694. He now agrees with Newton and gives the detailed computations for A, B and C. A few days later Pepys replies, thanking him for the reasonable arrival of his letter for "being upon the very brink of a wager (£10 deep) upon my former belief. But apostacy (we all know) is now no novelty, and therefore like others I shall endeavor to make the best of mine, and face my antagonist downe that I always meant Thus. But then I must begg your ayde, that I may not be outbraved (as I have sometimes seen it done at Garroway's (a coffee house) by a cross-offer, and for want of knowing well why, not know which to stick to."

Pepys goes on to propose the time when he plans to welch on his original position in placing the wager. Whether he was able to find takers and whether he was successful, I have not found recorded. Certainly from the amount of effort he devoted to trying to understand the problem and the caliber of the consultants he enlisted, we can hope he profited handsomely.

NOTES

(1) I have not found any reference to this correspondence in any books on probability. Some twenty years ago I came across the reference in Volume II of Chrystal's *Algebra*. Only recently, I noticed that Todhunter's *History of Probability* does not contain the reference, which may explain its ommission from other books.

(2) J. M. Keynes' essay is reprinted in Newman's *World of Mathematics*.

(3) For data on Pepys and Newton, I used the Columbia Encyclopedia.

(4) I was tempted to refer to Mr. Smith as a gambler, having in mind the historical parallel of the chevalier de Mere and the problem he brought to Pascal. Oystein Ore in the American Mathematical Monthly for May 1960 points out that contrary to the widespread accounts, de Mere was not a professional gambler and "would turn in his grave at such a characterization of his main occupation in life."

(5) Newton's correspondence is just now being published by Cambridge University Press. Up to now a complete collection has not been attempted. The volumes dealing with the correspondence in this article will not appear before next year. The source for all letters given in this article has been "Private Correspondence and Miscellaneous Papers of Samuel Pepys," Edited by J. R. Tanner, G. Bell and Son, 1926.

ELECTION OF NEW FELLOWS

At the Annual Meeting of the American Statistical Association, held at Stanford University, Palo Alto, California, the Committee on Fellows, composed of Churchill Eisenhart, Chairman, and Chester I. Bliss, Dudley Kirk, Frederick Mosteller and Guy H. Orcutt, announced the election of the following new Fellows:

ALLAN BIRNBAUM, Associate Professor of Mathematical Statistics, Institute of Mathematical Sciences, New York University, for signal contributions to statistical methodology, particularly with respect to Poisson processes, sequential tests, and factorial experimentation, for his studies of the statistical theory of mental ability, and for his effective service to the statistical profession in various editorial capacities.

JOSEPH MARION CAMERON, Assistant Chief, Statistical Engineering Laboratory, National Bureau of Standards, for his exceptional achievements in the introduction and application of modern statistical methods in various basic calibration, standard-sample, and precision-measurement programs of national importance, for his leadership in the effective utilization of high-speed electronic computers to achieve comprehensive statistical analyses of data from complex experimental programs, and for his various publications and talks that have contributed greatly to the acceptance of statistical engineering as a research tool in physical-science and engineering experimentation.

EDWIN LOUIS CROW, Consultant in Statistics, Boulder Laboratories, National Bureau of Standards, for his notable achievements in advancing effective use of modern statistical procedures in naval ordnance research and development, in ionospheric radio propagation and upper atmosphere research, and in the calibration of electronic and radio standards, through his leadership, his own contributions, his publications, and his development of special tables and other aids, and for his leadership in Association affairs in the Ninth District.

JAMES DURBIN, Reader in Statistics in the London School of Economics and Political Science and member of its Division of Research Techniques, for his contributions to the analysis of time series and regressions and many other complex problems in statistical methodology, and for his many services to the statistical profession in an editorial capacity.

JOHN ERNST FREUND, Chairman, Department of Mathematics, Arizona State University, for his notable contributions to the advancement of statistical theory and practice through research, teaching, distinguished authorship, and for his leadership in the Section on Training.

ROBERT C. GEARY, Director of the new Economic Research Institute in Dublin, for his outstanding leadership of statistics in his native Ireland, both as an investigator and teacher of statistical methodology and as Director of the Central Statistics Office in Dublin, for his services to the United Nations as Technical Consultant in the Food and Agriculture Organization and as Chief of the National Accounts Branch in its Statistical Office, and for his many years of service to the statistical profession in an editorial capacity.

SAMUEL WILLIAM GREENHOUSE, Section on Theoretical Statistics and Mathematics, National Institutes of Mental Health, for his many and distinguished applications of statistics to the biological and social sciences as well as medicine and public health, for his research in statistical methodology, in particular multivariate analysis and multiple comparisons and for his effectiveness as a statistical consultant to investigators in a variety of scientific fields.

THOMAS N. E. GREVILLE, Chief Mathematician in the Office of the Quartermaster General, for his contributions to the methodology of life table construction, to the theory of interpolation and smoothing of data, and to the statistical theory of card matching, as well as for his work toward the improvement of vital statistics and health statistics in Brazil.

MAX HALPERIN, Statistician, Knolls Atomic Power Laboratory, General Electric Company, for his many effective applications of statistics in the biological and physical sciences, and for his notable contributions to statistical methodology, particularly truncation, multiple comparisons, and acceptance sampling.

CLIFFORD GEORGE HILDRETH, Professor of Agricultural Economics, Michigan State University of Agriculture and Applied Science, and current Editor of the Journal of the American Statistical Association, for his leadership and noteworthy contributions in the application of statistical methods and the techniques of structural analysis to the advancement of our understanding of economic phenomena, especially in the livestock and feed economy.

ALLYN WINTHROP KIMBALL, newly appointed Professor of Biostatistics in the School of Public Health of the Johns Hopkins University, for his contributions and leadership in the development of essential statistical tools for the rapidly expanding field of radiation biology, and for his international services to the statistical profession.

GEORGE M. KUZNETS, Professor of Agricultural Economics, Giannini Foundation, University of California, for his many effective applications of statistics in agricultural economics and marketing research, and especially for his notable contributions to the development and application of sampling methods in crop estimations and forecasting and of experiment design techniques in the measurement of consumer response and preference.

FELIX E. MOORE, Professor and Chairman, Department of Public Health Statistics, School of Public Health, University of Michigan, for his contributions to the statistical analysis of facts of and factors in diseases of the heart and circulatory system, and for his vigorous advocacy of a statistical approach to public health and related social problems.

ALMARIN PHILLIPS, Associate Professor of Business Administration, Graduate School of Business Administration, University of Virginia, for his extensive research in interindustry economics and industrial structure, his outstanding record as Editor of the American Statistician from 1953 to 1956 and for his effective leadership as Chairman of the Committee on Publications Policy of the American Statistical Association.

JOHN R. H. SHAUL, for 20 years distinguished Director of Census and Statistics of the Central African Statistical Department in Southern Rhodesia, first honorary research fellow, University College of Rhodesia (1957); honorary president Rhodesian Economic Society; noted for pioneering and distinguished work in the field of sampling African populations; responsible for the first sampling demographic census and the first sample agricultural census ever to be carried out in Africa; distinguished for writings and reports upon these subjects in various scholarly journals.

ROSEDITH SITGREAVES, Associate Professor of Education in Teachers College of Columbia University, for her many contributions to mathematical statistics and its applications, formerly in industrial hygiene and public health and now in the wide areas of education.

JOSEPH STEINBERG, Chief, Statistical Methods Office, Bureau of the Census, for his contributions in developing highly efficient sampling methods for use in censuses and surveys; for initiating advanced procedures to measure and control the quality of work in the current surveys of the Bureau of the Census; and for the display of much imagination in attacking the difficult

task of evaluating the coverage and content of major censuses, especially the 1960 Census of Population and Housing.

IRENE BARNES TAEUBER, Research Associate, Office of Population Research, Princeton University, for her numerous and authoritative studies of the demography of East Asia and for her unstinting contributions to the methods, organization and bibliography of population study.

MILTON EVERETT TERRY, Statistician, Bell Telephone Laboratories, Murray Hill, New Jersey. An intrepid individualist who left the simple life of a college professor to assist engineers in the design and analysis of the complex experiments of modern technology and thereby became a pioneer in the use of high speed computers for detecting statistical evidence for assignable causes—the gremlins that may invalidate the statistical assumptions on which an experiment and its analysis are based.

JAN TINBERGEN, Professor of Mathematical Economics and Development Programming, Netherlands School of Economics, and a Director of the Netherlands Economic Institute, for his major contributions to the founding of the field of econometrics and for his pioneering development and application of econometric models to problems of economic stabilization and growth.

DAVID LEE WALLACE, Assistant Professor of Statistics, University of Chicago, for his contributions to the advancement of statistical theory and applications through his teaching, his publications, and his service to the profession as Acting Editor of the Journal of the American Statistical Association in 1959.

MAX ATKIN WOODBURY, Professor of Mathematics, Research Division, College of Engineering, New York University, for his contributions to the development of statistical procedures for the evaluation of cloud-seeding experiments, for his solutions of important statistical problems in econometrics, logistics and psychometrics, and for his effectiveness as a consultant and advisor in bringing statistical methods to bear on problems in a wide variety of fields.

JANE WORCESTER, Associate Professor of Public Health at Harvard University, for her contributions to quantitative epidemiology, to the analysis of anatomical and physiological relations, and to the statistical tools of public health and medicine, and for her many years of teaching statistical thinking to students in medicine and public health.

STATISTICAL DEVELOPMENT IN THE PHILIPPINES—CONTINUED FROM PAGE 22

(1) The development of a decentralized statistical system with a central coordinating authority.

(2) The institution of government-wide planning and programming of statistical activities and the provision of funds for carrying out planned statistical activities.

(3) The formulation of statistical standards and sound methodology on the basis of consultation and participation of specialists applying the standards developed.

(4) The training of a small group of key professional statisticians and related personnel employed by major statistical agencies of the government.

(5) The production of up-to-date, accurate, and reliable data on the size, composition, and distribution of population, status of the labor force, income and expenditures, household industries and other quantitative information needed in socio-economic planning and the establishment of reporting systems to maintain such data on a current basis.

NEWS ABOUT MEMBERS

David E. Acker has transferred from the home office in Cambridge, Massachusetts to become the Business Manager for a new engineering branch of Arthur D. Little, Inc. in Santa Monica, California.

Harry Alpert, Dean of the Graduate School and Professor of Sociology at the University of Oregon, has been named Editor of the *American Sociological Review,* official publication of the American Sociological Association.

Harvey J. Arnold was appointed Assistant Professor in the Department of Mathematics at Wesleyan University, Middletown, Connecticut, effective July 1, 1960.

Max Astrachan joined the Logistics Department of the RAND Corporation on August 1.

Richard S. Barth worked at the Bureau of the Census during the summer of 1960 as part of the student trainee program. He has returned to Boston University to complete the requirements for his B.S. degree.

John M. Birmingham, Jr., has been appointed Vice President-Investment Research by the Wellington Management Company, adviser to the Wellington Fund and the Wellington Equity Fund.

Edward F. Brayer, Chief Statistician of the Bureau of Employees' Compensation, Department of Labor, has been awarded a Career Service Award. Recipients of this Award are enabled to pursue full-time at Government expense special studies and research projects in areas in which they have shown great ability and interest. Mr. Brayer will study actuarial research and statistical techniques and insurance administration at a leading U. S. university, and will observe workmen's compensation research methods used by the United Nations, Great Britain and Canada, and several American States.

Harold X. Brown, formerly with Chance Vought Aircraft, Inc. in Dallas, Texas, is now supervisor of Mathematical Services and Operational Analyses in the Reliability Department of the Allison Division of General Motors Corporation in Indianapolis, Indiana.

Robert J. Buehler of the Department of Statistics, Iowa State University, has been promoted to Associate Professor.

Donald L. Burkholder of the Department of Mathematics, University of Illinois, has been promoted to Associate Professor.

Foster B. Cady of North Carolina State College has been appointed Associate Professor in Statistics at Iowa State University.

Richard L. Carter has been appointed Professor of Management Engineering at Rensselaer Polytechnic Institute. Dr. Carter was formerly Associate Professor of Industrial Engineering at Illinois Institute of Technology.

James P. Cavin will be Acting Director of the Agricultural Economics Division, Agricultural Marketing Service, during the absence of Frederick V. Waugh.

Jack Chassan has been elected as a Fellow of the American Association for the Advancement of Science.

John Carrollton Chew, formerly a Marketing Research Specialist and Engineering Analyst with General Electric Company, has joined the B. F. Goodrich Company as a Senior Marketing Analyst assigned to industrial and commercial product lines.

Samuel Chmell, formerly Chief of the Division of Employment and Compensation Analysis, Office of Director of Research, has been appointed Director of Research, U. S. Railroad Retirement Board.

Jerome Cornfield, for several years with the Johns Hopkins University, has returned to the Public Health Service where he will be in charge of the Biometrics Research Center of the Biometrics Branch of the National Health Institute.

John W. Cotton, formerly of Northwestern University, has been appointed Associate Professor of Psychology at the University of California, Santa Barbara.

Arnold Court, formerly a Research Meteorologist for the U. S. Forest Service in Berkeley, California, has been appointed Chief, Applied Climatology Branch, Meteorological Development Laboratory, Geophysics Research Directorate, Air Force Research Division (ARDC), at Laurence G. Hanscom Field, Bedford, Massachusetts.

Edwin B. Cox, formerly an Instructor in the Department of Economic and Social Statistics in the Wharton School of Finance and Commerce, University of Pennsylvania, has taken a position as Assistant Professor of Business Administration at Boston University, teaching statistics and mathematics. He received his Ph.D. in Economics from the University of Pennsylvania in June 1960.

Rex F. Daly has returned to the Agricultural Economics Division, Agricultural Marketing Service, after an assignment with ICA in Pakistan. In his new assignment, he will be Chief of the Farm Income Branch.

Morris Darnovsky will direct the combined activities of Market Research Services and Howard Whipple Green Associates, market research and statistical firms which have recently merged. Mr. Darnovsky has recently been appointed Director of the Real Property Inventory of Metropolitan Cleveland, and is currently President of the Cleveland Chapter, American Statistical Association.

Herbert David of the Department of Statistics, Iowa State University has been appointed to Associate Professor.

Halbert L. Dunn, who has been in charge of Federal vital statistics activities since 1935, is now Special Assistant in Aging in the Division of General Health Services of the U. S. Public Health Service. At the time of his appointment, vital statistics was located in the Bureau of the Census. In 1946, the function was transferred to the Public Health Service.

John W. Dyckman has resumed his duties at the Department of City Planning and the Institute of Urban Studies at the University of Pennsylvania after a year as Visiting Professor in the Department of City Planning and the School of Business Administration at the University of California in Berkeley.

Franklin M. Fisher has been appointed Assistant Professor of Economics, Massachusetts Institute of Technology.

Howard E. Fradkin has transferred from Ohio State University where he was Assistant Professor of Social Administration, to San Francisco State College where he is Associate Professor of Social Welfare.

Fred Frishman, head of the Mathematics Division of the Naval Propellant Plant, recently accepted an appointment as a mathematician with the Army Research Office, Office of the Chief of Research and Development, Department of the Army.

D. W. Gaylor received a Ph.D. in Experimental Statistics from North Carolina State College and has accepted an appointment with Vallecitos Atomic Laboratory, General Electric Company, Pleasanton, California.

Seymour Geisser has returned to his position as mathematician at the National Institutes of Health after having served as Visiting Associate Professor at Iowa State University during the spring of 1960.

Leon Gilford has accepted a position as Mathematical Statistician with Operations Research Incorporated, Silver Spring, Maryland. He was formerly Chief of the Operations Research Branch, Statistical Research Division, U. S. Bureau of the Census.

John P. Gill has resigned as Director of the Bureau of Business Research and Professor of Economics at the University of Georgia and is now Professor and Head of the Department of Business Statistics, School of Commerce and Business Administration, University of Alabama.

Le Roy H. Groeper, formerly Chief of the Manual Processing Section, Statistics Division, Internal Revenue Service, has been promoted to Assistant Chief, Operations branch.

Ernest W. Grove, formerly Head of the Farm Income Estimates Section in the Agricultural Economics Division of the Agricultural Marketing Service, has transferred to the staff of the Price Division, Commodity Stabilization Service, U. S. Department of Agriculture.

John Gurland of the Department of Statistics, Iowa State University, has been appointed as visiting Professor at the U. S. Army Mathematics Research Center, University of Wisconsin, for the period July 1, 1960 to June 30, 1961.

George F. Hadley, formerly Assistant Professor of Industrial Management, School of Industrial Management, Massachusetts Institute of Technology, is now Associate Professor of Business Administration, Graduate School of Business, University of Chicago.

Bernard Hall has accepted a position as Director of the newly established Bureau of Business Research and Service, and as Associate Professor in the College of Business Administration, Kent State University, Kent, Ohio.

H. O. Hartley, Department of Statistics, Iowa State University, spent the summer in England where he and Dr. E. S. Pearson worked on the second volume of *Biometrika Tables.*

Richard J. Hill's new position is Associate Professor and Director of the Departmental Statistical Laboratory, Department of Sociology, University of Texas.

J. Stuart Hunter, U. S. Army Mathematics Research Center at the University of Wisconsin, is the recipient of one of the three 1960 medals awarded by the American Society for Quality Control for efforts to advance the science of quality control.

William C. James has returned to the United States for a vacation after serving nearly four years as a public health statistician for the International Cooperation Administration. His assignment is in El Salvador where he designed a system of reporting and analyzing data on public health problems.

Elmer H. Johnson has returned to North Carolina State College on completion of two years leave to serve as Assistant Director of Prisons, North Carolina Prison Department.

Thomas A. Jones has returned from the Institute for Quantitative Research in Economics and Management at Purdue University to Kimberly-Clark Corporation as an Operations Research Analyst.

Cecil L. Kaller received the Ph.D. in Mathematical Statistics from Purdue University in June 1960. He has accepted the position of Assistant Professor of Mathematics at the University of Saskatchewan.

Dexter M. Keezer has retired as Director of the McGraw-Hill Publishing Company's Department of Economics. He continues to serve the Company as Economic Adviser and a member of the Boards of Directors of the Publishing Company and the Book Company.

Bruce W. Kelly, formerly Mathematical Statistician in the Agricultural Estimates' State Office, Orlando, Florida, has returned to Washington as Acting Chief, Research and Development Staff, Agricultural Estimates Division, Agricultural Marketing Service.

Oscar Kempthorne, Department of Statistics, Iowa State University, has been granted the research degree, Sc.D., Doctor of Science, by Cambridge University, England.

M. G. Kendall has been elected President of the Royal Statistical Society for the session 1960-61.

Allyn W. Kimball, Jr., has resigned his position as Chief of the Statistics Sections of the Mathematics Panel at Oak Ridge National Laboratory and has been appointed Professor and Chairman of the Department of Biostatistics in the School of Hygiene and Public Health at Johns Hopkins University. Dr. Kimball has also been appointed Professor of Biomathematics in the School of Medicine.

Edward H. Kingsley, formerly Chief, Operations Analysis Office, Hq., OCAMA, Tinker AFB, Oklahoma, has accepted a position as an Operations Research Analyst in the Operational Science Laboratory of the Research Triangle Institute, Durham, North Carolina.

Oliver Lee Kingsley now works for the Systems Engineering Branch of the Range Instrumentation Development Division at White Sands Missile Range.

Marcus Kjelsberg, Instructor in Biostatics, Tulane School of Medicine for the past three years, has returned to the University of Minnesota for further work in Biostatistics.

H. P. Kuang has been appointed to a full professorship at the North Dakota Agricultural College, State College Station, Fargo, North Dakota.

A. Moyer Kulp has been appointed Senior Vice President by the Wellington Management Company, adviser to the Wellington Fund and Wellington Equity Fund.

Charles B. Lawrence, Jr., and **Luther W. Stringham** were jointly cited by the Department of Health, Education and Welfare in its Honor Awards Program "for exceptionally meritorious service in conceiving and developing for executive and public use the two publications, HEW INDICATORS and the HEW TRENDS." Mr. Lawrence, now on leave of absence from HEW, is in Seoul, Korea as Chief of the Survey and Research Corporation's Statistical Advisory Group.

James A. Lechner, having been relieved from active duty with the U. S. Army, has accepted a position with Westinghouse Electric Corporation at the Research Labs, Pittsburgh, Pa., as Research Mathematician.

William Lerner has been named Assistant Chief of the Statistical Reports Division, Bureau of the Census.

William A. Lesansky, formerly Chief of the Transport Economics Division, has been appointed the Deputy Director of Services, Military Traffic Management Agency.

Robert E. Lewis has been appointed an Assistant Vice President by the First National City Bank of New York. He is assigned to the Bank's Economics Department and works with the Monthly Letter on economic conditions.

Merton V. Lindquist has resigned his position as Chief of the Statistical Methods Branch in the Agriculture Division, Bureau of the Census, to accept a position with the International Cooperation Administration as Public Administration Advisor (Statistics), Dacca, Pakistan.

Lawrence C. Lockley has left the Graduate School of Business at Columbia University, where he was a Visiting Professor of Marketing, to accept an appointment as Professor of Business Administration and Chairman of the Department of Marketing, University of Santa Clara. He resigned as Dean of the School of Commerce, University of Southern California in the Summer of 1959.

Eric J. Lynn has joined Mack Trucks, Inc. as a Marketing Specialist.

Earle H. MacCannell has taken a position as Assistant Professor of Sociology at the University of Alberta.

Albert J. Macek has terminated his Public Health Service Fellowship at the University of Minnesota and taken a job in human factors engineering at the Martin Company in Denver.

Benjamin J. Mandel, formerly Chief of the Statistics Branch, Bureau of Old-Age and Survivors Insurance, has joined the staff of the Office of Education in a new position as Assistant Director of the Educational Statistics Branch, responsible for the planning and execution of the program of design, collection, analysis, and estimation of current statistical data on education, and of projections of trends.

Jacob Marschak, Professor of Economics at Yale University, became Professor at the Graduate School of Business Administration, University of California at Los Angeles. He remains Research Consultant at the Cowles Foundation for Research in Economics at Yale University.

Walter Matschek has retired from the position of Director of Research, U. S. Railroad Retirement Board.

Ted E. McHold has been appointed Chief of a newly-organized Branch, Statistical Techniques, in the Statistics Division of the Internal Revenue Service.

Edmund A. Mennis has been appointed Vice President-Investment Research by the Wellington Management Company, adviser to the Wellington Fund and Wellington Equity Fund.

Albert S. Mincis has been assigned as a Senior Mathematician to the newly created Mathematical Analysis Section in the Systems Development Department of the Military Division of Remington Rand Univac. He had been working as a Staff Mathematician on the Naval Tactical Data System at Remington Rand Univac's field installation in San Diego, California for the past year.

J. Murray Mitchell, Jr., has returned to duties with the U. S. Weather Bureau. In June 1960, he received his Ph.D. in Meteorology at the Penn State University.

G. D. Morlan has been transferred to Seattle as Assistant Statistician in charge of the Mathematical Statistics and Personnel Studies Sections of Pacific Telephone-Northwest.

Donald Morrison spent the past academic year completing the requirements for his Ph.D. degree in Statistics at the Virginia Polytechnic Institute. This study was made possible by a year's training leave from the National Institute of Mental Health. The training also included a visit with the Psychometric Laboratory, University of North Carolina, prior to Dr. Morrison's return to the Biometrics Branch, NIMH.

Milton Moss, Economist with the Board of Governors of the Federal Reserve System, has been granted leave of absence beginning in September 1960 to spend a year in research at Columbia University to complete a study for his Ph.D.

Stanley W. Nash, Associate Professor of Mathematics at the University of British Columbia, has been appointed as Visiting Associate Professor in Statistics at Iowa State University.

Marc Nerlove has been appointed Professor of Economics at Stanford University.

J. W. Nixon has recently written "A History of the International Statistical Institute, 1885-1960", which has been published by the International Statistical Institute.

Paul S. Olmstead, Consultant to the Bell Telephone Laboratories at Whippany, New Jersey, has been awarded one of the three 1960 medals given by the American Society for Quality Control for efforts to advance the science of quality control.

Richard E. Petersen has transferred to the Process Engineering Group, Rayonier, Incorporated, in Jesup, Georgia, working on the application of statistical analyses to pulpmill problems.

Lloyd A. Prochnow has returned from two years of oversea service under the

ICA Census Program to the Division of Foreign Labor Conditions, Bureau of Labor Statistics, as Chief of the Branch of International Technical Cooperation.

Dana Quade received the Ph.D. degree in Statistics from the University of North Carolina in June 1960 and is now with the Public Health Service at the Communicable Disease Center, Atlanta, Georgia.

Charles P. Quesenberry has joined the staff of the Department of Mathematics, Montana State College at Bozeman. In addition to teaching, he is consulting with the experiment station and doing research.

Paul Rackow has been awarded a Masters degree in Statistics from the Graduate School of Business, New York University. He is engaged in developing sample designs and working on other assignments in the Planning Division of the Port Development Department, Port of New York Authority.

Harvey Roazen, formerly Instructor of Psychology, University of Minnesota, Duluth, is now Research Associate at the Institute for Applied Experimental Psychology, Tufts University, Medford, Massachusetts.

Harry G. Romig has been appointed to the staff of Operations Research, Inc. as Senior Scientist. Dr. Romig will be instrumental in setting up programs of reliability assurance for the military and industry and will be located at the Corporation's Western Division office in Los Angeles.

Paul L. Roney, formerly a Supervisory Survey Statistician in the Decennial Operations Division, Bureau of the Census, has transferred to the Federal Aviation Agency.

David Rosenblatt has been elected to membership in the Washington Academy of Sciences.

Harry M. Rosenblatt, formerly with the Federal Aviation Agency, has accepted the position of Chief of the Operations Research Branch, Statistical Research Division, Bureau of the Census.

Margaret A. Ross has accepted a position as Survey Statistician in the Statistical Methods Office, Bureau of the Census.

Jack Sawyer has been appointed Assistant Professor in the Departments of Psychology and Sociology at the University of Chicago, where he was previously postdoctoral fellow and lecturer.

John A. Sawyer has resigned as Chief of the Research Projects Section of the Dominion Bureau of Statistics, Ottawa, and has been appointed Assistant Professor in the Graduate School of Business of the University of Toronto.

J. Leonard Schatz has joined The Pillsbury Company's Commercial Research Department. His position is Senior Analyst in the Grocery Products Division, located at Pillsbury's main offices in Minneapolis, Minnesota. He was formerly Market Research Manager of the Penn Fruit Company, Inc. in Philadelphia.

Richard N. Schmidt, Associate Professor of Statistics in the School of Business Administration at the University of Buffalo, was appointed American Professor in the Department of Industrial Administration at the Royal College of Science and Technology, Glasgow, Scotland, for the 1960 summer term. He gave lectures in the business use of the electronic computer and in management statistics.

Warren K. Schoonmaker, formerly Market Research Director of Smith, Winters, Mabuch, Inc. of New York City, has joined the Semi-conductor Division of Raytheon Manufacturing Company as Advertising and Sales Promotion Manager. The Semi-conductor Division is located at Newton, Massachusetts.

Mindel C. Sheps, M.D., formerly Assistant Professor of Preventive Medicine, Harvard Medical School, is now Associate Research Professor of Biostatistics, Graduate School of Public Health, University of Pittsburgh, and Associate Research Professor of Preventive Medicine at the University of Pittsburgh Medical School.

Demitri B. Shimkin, Senior Research Specialist, Foreign Manpower Research Office, Bureau of the Census, became Professor of Anthropology and Geography at the University of Illinois, on September 1.

Leslie E. Simon, Major General, USA (Retired), has resigned as Vice President and Director of Research of The Carborundum Company, where he has completed a four year task of reorganizing the Company's research and development. He has accepted a new position with the same company as Staff Director of Research, continuing to maintain an office at the company's Central Laboratory in Niagara Falls, but residing in Winter Park, Florida.

Morton Jay Smith has taken a position as Junior Reliability Engineer with the Norden Laboratories, Stamford, Connecticut.

Milton Sobel of the Bell Laboratories and New York University has joined the staff of the Statistics Department of the University of Minnesota as Associate Professor.

Frederick A. Sorensen received a Ph.D. (Department of Mathematics) from Carnegie Institute of Technology last year. He continues as a statistician at the Applied Research Laboratory, United States Steel Corporation, Monroeville, Pa.

Robert G. D. Steel has joined the staff of the Institute of Statistics of the Department of Experimental Statistics at North Carolina State College. He will be engaged in teaching, research and consulting.

Robert B. Steffes of the Bureau of Labor Statistics has received a Career Service Award from the Department of Labor. During the coming year, he will study quantitative and qualitative methods of measuring and evaluating the progress of statistical programs, with a view to improving Government administrative statistics.

Edward G. Stockwell received a Ph.D. in Sociology from Brown University in June 1960. He is currently employed as a Demographic Statistician by the Bureau of the Census in Washington.

P. D. C. Stratford is now a Fellow of the Institute of Actuaries in London and has recently been appointed Actuary of the Transport and General Life Assurance Company Limited of Sydney, Australia.

Izumi Taniguchi has been appointed Assistant Professor in the Department of Economics of the University of Missouri.

Robert J. Tolliver, formerly Assistant to the Chief of the Operations Branch, has been promoted to Chief of the Operations Branch, Statistics Division, Internal Revenue Service.

Morris B. Ullman, formerly Chief of the China Branch of the Foreign Manpower Research Office in the Bureau of the Census, has joined the staff of the Office of Statistical Standards, U. S. Bureau of the Budget.

Arthur F. Veinott, Jr., is currently on leave from the Logistics Department of the Rand Corporation. He is serving a two year term of active duty as 1st Lt. with the Operations Analysis Office attached to Headquarters, Air Materiel Command, USAF.

Helen M. Walker, a former President of the American Statistical Association, has had two Fulbright appointments—a six months' Fulbright appointment to Chile, where she taught in the University of Chile in Santiago and a thirteen months' appointment to Japan, where she taught in the International Christian University (Tokyo) and Tokyo University, and gave lectures at other higher educational institutions in Japan. She was made an honorary member of the Japan Statistical Society in November 1959. Since December, she has been traveling in Southeastern Asia and various Mediterranean countries.

Frederick V. Waugh, Director of the Agricultural Economics Division, Agricultural Marketing Service, is taking a year's leave of absence to accept a Senior Research Award in Governmental Affairs from the Social Science Research Council.

Irving Weiss, Assistant Chief of the Economic Operations Division, Bureau of the Census, is on an extended leave of absence to accept employment with the United Nations as adviser to the Government of Israel.

John S. White has accepted a position as Senior Research Mathematician with the General Motors Research Laboratories.

Edwin B. Wilson, Professor of Vital Statistics, Emeritus, at Harvard University, and General Sciences Consultant to the Boston Branch office of the Office of Naval Research, has been awarded the Navy Superior Civilian Service Award for his part in the successful planning and organization of research programs in behalf of the Office of Naval Research and the Navy.

Grace A. Witherow, Chief of the U. S. Trade Statistics Section of the International Economic Analysis Division, Bureau of Foreign Commerce, U. S. Department of Commerce, retired at the end of August, 1960. Miss Witherow has specialized in U. S. foreign trade statistical work during most of her 42-year career, and has borne chief responsibility for the Bureau's publications in this field.

William Wolman received the Ph.D. degree in Mathematics and Statistics at the University of Rochester in June 1960. He has transferred from the Navy Department and has joined the newly organized Office of Reliability and Systems Analysis at the National Aeronautics and Space Administration, Headquarters, Washington, D. C., as Chief Statistician.

SAMUEL ANDREW STOUFFER 1900-1960

Death prematurely terminated the outstanding career of Samuel A. Stouffer, Professor of Sociology, and Director of the Laboratory of Social Relations at Harvard University on August 24, 1960. Born on June 6, 1900 in Sac City, Iowa, Stouffer, at 60, was just entering a new and significant area of Research. On a year's leave of absence from Harvard, he had undertaken on behalf of the Population Council the task of helping to initiate studies on motivation in fertility control in the economically underdeveloped areas of the world.

Stouffer became one of the leading statisticians in sociology even though he acquired an interest in quantitative matters relatively late as a graduate student. But, characteristically, he drove himself into intensive statistical study in 1928 climaxed by a year at the University of London (1931-32) which paved the way for his many important contributions to quantitative sociological research. Stouffer was an important pioneer bridging the gap between speculative and philosophical general sociology and empirical sociology by utilizing statistical and mathematical methods. Although he had a keen interest in methodology, he was primarily concerned with the interplay of theory and empirical investigation well exemplified in much of his work.

It is more than a coincidence that Stouffer's major research contributions are associated with major national problems. Research opportunities came to him in the form of calls to provide a factual basis for dealing with a number of the acute problems which faced the nation during his lifetime.

During the depression 30's, he was sought out by the Social Science Research Council to direct the preparation of the significant series of monographs on the study of the Social Aspects of the Depression. During World War II, he answered the call of the Department of Defense to direct research activities to provide as scientific a basis as possible for creating, directing and demobilizing the armed forces. The prodigious four-volume work, in three of which Stouffer was directly involved—two volumes on THE AMERICAN SOLDIER and the volume, MEASUREMENT AND PREDICTION (Princeton University Press, 1949-50), was the effort of a team in large measure created and directed by Stouffer. It remains as an enduring research monument and a major demonstration of the potentialities of social science. During the post-war 50's, in the crisis precipitated by the hysteria of the McCarthy era, Stouffer received still another call—this one from the Ford Foundation's Fund for the Republic to survey the attitudes of Americans on the vital subjects of civil liberties and Communism. This notable study was reported in COMMUNISM, CONFORMITY AND CIVIL LIBERTIES, (Doubleday & Co., New York, 1955). In each of these instances, Stouffer received the call from agencies concerned with vital national problems whose needs demanded the best in research leadership.

Much of Stouffer's work led directly, or indirectly, to the improvement of the sample social survey as an instrument of research. His contributions in this area fed directly into the work of commercial survey research organizations, including the public opinion polls, as well as to the survey work of university and non-commercial research organizations. He made major contributions to the statistical program of the Federal Government in his work with the Central Statistical Board (1934-35) and in his advisory activities over the years to the professional staff of the U. S. Bureau of the Census.

Professor Stouffer had a full share of recognition as a sociologist and a statistician. He served as President of the American Sociological Association (1952-53), and President of the American Association of Public Opinion Research (1953-54). He was a Fellow of A.S.A. and a leading contributor to the *Journal of the American Statistical Association;* and a member of the Institute of Mathematical Statistics. He received an LL.D. from Morningside College in 1939 where he had taken his A.B. degree in 1921. He was the rare social science holder of an Sc.D. from Princeton University, in 1948. Stouffer's academic career prior to his call to Harvard in 1946 included his serving as Professor of Sociology at the University of Chicago (1935-46); Professor of Social Statistics at the University of Wisconsin (1931-35); and Instructor in Statistics, University of Chicago (1930-31). His influence as an academic statesman was too widespread to permit detailing here.

Although Stouffer himself undoubtedly would prefer to be remembered by his contributions to research, he was an inspiring teacher with unusual ability to fire his students and to transmit his own sense of dedication to the advancement of knowledge as a worthy pursuit. To those who had the privilege of knowing "Sam" he was even more than the superb scientist and inspiring teacher —he was a very special human being. He was a man of great personal magnetism with rare capacity to communicate his own sense of fervor and excitement about research, teaching, people and things.

Philip M. Hauser
University of Chicago

William J. Cobb

William J. Cobb, Vice-President of Datatab, was killed in an automobile accident on July 23, 1960. Mr. Cobb had been in the field of sampling for twenty years, first working at the Works Projects Administration and the Census Bureau. Later, he was chief sampling technician for the National Housing Agency. In 1948, working for SCAP in Tokyo, he redesigned the Japanese probability samples used for population, labor force and establishment surveys. After a period as a consulting statistician in private practice he joined W. R. Simmons and Associates, Inc., becoming Research Director. In 1959, he became Vice-President of Datatab, Inc., a market research organization of New York City.

CHAPTER NOTES

Breakfast Meeting of Chapter Presidents, Secretaries and Regional Representatives

A stimulating discussion of chapter problems took place at the breakfast meeting of chapter presidents and secretaries and regional representatives with ASA national officers, which was held on the Stanford campus as part of the 1960 Annual Meeting. About 20 chapter representatives gave brief reports on their chapter activities, plans and problems.

Among the problems mentioned by several chapter representatives was the perennial one of getting a program which would appeal to members with widely different fields of specialization and interest. Some of the large chapters have solved this by a sectional form of organization, with the sections holding their own meetings in addition to occasional joint or general meetings. New York reported having recently added a section on training of statisticians. Cleveland has two sections—a general one and a business and economics section, each of which holds a monthly meeting. Central Iowa has been trying to attract Des Moines members by an occasional dinner in the city and visits to industrial plants. The Nebraska Chapter has arranged a tour of the Strategic Air Command. Representatives from the Pittsburgh, Sacramento and Southern California chapters mentioned plans for joint meetings with quality control, marketing and other organizations—a practice followed by some other chapters also. Howard Jones, a Vice-President of the Association, did not think that a chapter should expect or try particularly to get each member to attend all the chapter meetings, but should try to get every member to attend at least some meetings. This seems also to be the aim of the North Texas Chapter, which has mostly technical programs designed to help statisticians rather than attain a large membership.

The New York and San Francisco chapter representatives reported successful regional conferences on business forecasting. The Southern California Chapter co-sponsors a large business outlook meeting in January. The Washington, D.C. Chapter plans a different kind of forecasting session for its first fall meeting—forecasting the results of the November election.

There was some discussion of collection of dues. Ed Goldfield, Secretary of the Washington Chapter, thought having the national office collect the local chapter dues was helpful in getting members. Charles Landenberger, Secretary of the Southern California Chapter, suggested the reverse possibility of having the local chapter collect the dues and forward the national dues to the ASA national office. He indicated his chapter had done that in a number of instances and said this strengthened the feeling that the chapter is a part of the Association. He believed the national organization should stress the importance of joining local chapters. Donald Riley thought the national office, when it sends out dues notices, could remind members of this. Howard Jones favored increased dues of, say $12.50, of which $2.50 would be remitted to the local chapter. It appeared that in the case of several chapters some or even most of their members were not members of the national organization. National collection of local dues would present problems for such chapters.

Dana Barbour, News Editor of *The American Statistician*, again urged chapter secretaries to send in notes of their chapter activities. He also asked that he be notified when there are changes in previously announced meetings. Charles Landenberger thought the chapters should stimulate articles in *The American Statistician* on chapter plans when they were in a development stage. Howard Jones thought these might be published in a more permanent form as brochures which would be of interest to other chapters and which could be filed away. President Hansen thought both forms of publication were desirable.

President-Elect Martin Gainsbrugh wanted the chapters to give thought to the possibility of raising professional standards by establishing requirements for membership. He asked that the chapters write to him their ideas on this subject.

Albany

The activities of the past year were described briefly and plans for the future were discussed at the last meeting of the 1959-60 year, a luncheon meeting held on June 9th. The following officers were elected for 1960-61:

President—Mrs. Helen C. Chase, New York State Department of Health
Vice-President—Alfred D. Basch, New York State Department of Commerce
Treasurer—Malcolm Abrams, New York State Department of Health
Secretary—Elizabeth H. Christen, New York State Department of Agriculture and Markets
Chapter Representative—Basil Y. Scott, New York State Bureau of Motor Vehicles

Arizona

This new chapter was presented its charter by Donald C. Riley, Executive Director of the American Statistical Association, at the dinner meeting held on September 1st. The guest speaker for the evening was Walter T. Lucking, President of Arizona Public Service Company.

The Crystal Ball, the Chapter's publication, reports the formation of an Information Clearance Committee. Stewart P. Robinson, First National Bank, is chairman of the committee and its Phoenix representative. Robert Heath, University of Arizona, is the Tucson representative. The function of the committee is to gather data of a general nature which the individual members of the chapter may have secured and then to make it available on request to members. The aim is to eliminate duplication of effort and enable the membership to keep abreast of current developments with a wider range of vision.

Charles W. Miller, who had been elected Treasurer, has resigned because of the pressure of his new duties as one of the Supervisors of Maricopa County. Ruth I. Roaskrans, Unemployment Compensation Division, has been named Treasurer.

Buffalo-Niagara

The speaker for the February 29th meeting was Dr. Irwin D. J. Bross, Chief, Department of Statistics, Roswell Park Memorial Institute, Buffalo, N.Y. His topic for the evening was "A Statistical Approach to Public Problems: Applications to Auto Crash Injuries."

Dr. Bross used data from the Cornell Automotive Crash Injury Program to illustrate a scientific approach to a problem of public concern. This approach to public problems was likened to the strategies employed in the epidemiological study of disease where the collection of pertinent data is used to arrive at an understanding of the disease process and to isolate factors which influence the way in which the process behaves. By controlling those factors amenable to manipulation it is hoped to control the disease process.

Using this approach Dr. Bross illustrated how, by using the detailed breakdown of accident statistics collected as part of the Crash Injury Program, one was led to isolate certain factors influencing the fatality rates in certain kinds of accidents. The data also pointed to the fact that control of these factors could lead to substantial reductions in fatality rates in these types of accidents. Control in this case could be readily brought about by relatively simple changes in automobile design.

While technical solutions to the problems may seem readily apparent, Dr. Bross pointed out that the cooperation of many interested groups must be obtained before these solutions can be implemented and thoroughly evaluated under community conditions.

The speaker for the final meeting of the current program year held on April 18, 1960, was Dr. Morton L. Levin, Professor of Epidemiology, Roswell Park Memorial Institute, Buffalo, N.Y. The title of Dr. Levin's talk was "Some Statistical Aspects of Epidemiological Studies."

Dr. Levin spoke largely on two specific problems: (1) the statistical difficulties in designing studies adequate to demonstrate a carcinogenic effect of chemical additives to foods and (2) some of the statistical objections raised to the relationships that have been established between cigarette smoking and lung cancer.

Dr. Levin showed that extremely large experiments are necessary to demonstrate the effects that chemical additives might have on increasing the incidence of a disease such as cancer whose incidence is already rather small. Unless thousands of experimental animals were used, a chemical additive which might result in an appreciable number of cancer cases would be declared to have no effect.

Dr. Levin also examined the data put forward by critics of the smoking lung cancer link and discussed some of their objections and their validity.

Officers of the Buffalo-Niagara Chapter for 1960-61 are:

President—Alfred Blumstein, Cornell Aeronautical Laboratories, Buffalo
Vice-President—Edward Dowd, Roswell Park Memorial Institute
Secretary-Treasurer—Norman Severo, University of Buffalo

Central Indiana

At the May meeting, held at Indiana University, Dr. Robert Ferber, Research Professor of Economics at the University of Illinois and Director of the Consumer Savings Project, Inter-University Committee for Research on Consumer Behavior, addressed the chapter on "Explorations in the Structure of Consumer Savings."

The Officers of the Central Illinois Chapter for 1960-61 are:

President—JAMES A. NORTON, JR., Purdue University, Lafayette, Indiana
First Vice-President—ROBERT A. CALHOUN, State Board of Health, Indianapolis
Secretary-Treasurer — H. LATHAM BRETUNIC, Eli Lilly and Co., Indianapolis.

A Second Vice-President will be elected in October.

Chicago

The last dinner meeting of the year was held June 13th. M. Dutton Morehouse, Manager of the Chicago office of Brown Brothers, Harriman & Company, presented a short-term forecast of our economy for the remainder of 1960 and an appraisal of the first six months' activity. The new Chapter officers for 1960-61 were inaugurated. They are:

President — ROBERT L. SEIDNER, Chicago's *American*
Vice-President (Dinner Meetings)—WESLEY D. MITCHELL, Peoples Gas Light & Coke Co.
Vice-President (Midwest Conference)—JOSEPH H. RABIN, Paper Mate Company
Vice-President (Luncheon Meetings)—LAWRENCE V. CONWAY, American Savings & Loan Institute
Vice-President (Membership) — BERYL SPRINKEL, Harris Trust and Savings Bank
Vice-President (Communications)—LUCILE DERRICK, University of Illinois
Secretary—DANIEL L. SEIDEN, Swift and Company
Treasurer—BARBARA C. WALLACE, Welfare Council of Metropolitan Chicago
Representative on ASA District Committee—FREDERICK A. EKEBLAD, Northwestern University

The first luncheon meeting of the 1960-61 year was held September 13th. Two business economists, Dr. John Langum, President of Business Economics, Inc., and William Tongue, Economist, Jewel Tea Co., Inc., analyzed the current business situation and presented a short-term economic forecast. Other luncheon meetings scheduled are:

Oct. 11—Allen Wallis, Dean of the University of Chicago School of Business—"Measurement and Evaluation of Economic Growth"
Nov. 22—Leonard Martin, Assistant Director of the Department of Economics, American Medical Association —"Limitations Inherent in Measuring the Cost of Medical Care"

Luncheon meetings are held at Stouffers Restaurant, 26 W. Madison street, from noon to 1:30. The price of the luncheon is $2.50.

A dinner meeting was held on September 20th on the subject of "Statistics and Operations Research: Case Histories." Joseph A. Reres of Caywood-Schiller Associates was the speaker. This was the first of eight dinner meetings scheduled for the 1960-61 year.

The *Bulletin* of the Chicago Chapter has been rechristened the *Parameter*. The first issue under the new name was that of August. The Chapter has also prepared an Information Folder which contains a list of officers, a calendar of meetings, information about personnel placement, chapter publications, the national organization, etc. This folder is designed for use during the year as a permanent file for ASA correspondence.

Columbus

During the past year, the Chapter held six meetings at which the following speakers and topics were discussed:

October 17, 1959, Mr. Charles M. Armstrong, Statistician, New York Educational Dept., "Role of Statistics in Education."
November 18, 1959, Dr. Ralph M. Stogdill, The Bureau of Business Research, Ohio State University, "Leadership and Organization: Measures and Statistical Analysis."
January 20, 1960, Prof. William E. Dickerson, Department of Accounting, Ohio State University, "Equity Aspects of the Income Tax."
February 17, 1960, Mrs. Margaret Moore, Statistician, Ohio Department of Health, "Proposed Methods for Estimating the Population of Ohio."
April 20, 1960, Mr. John Ervin and Dr. Marjorie P. Guy, Ohio Department of Industrial and Economic Development, "A Look at Ohio's Newest Department: Industrial and Economic Development."
May 18, 1960, Mr. Merle Hostetler, Vice President, Federal Reserve Bank of Cleveland and Dr. Frances Quantius, Department of Economics, Ohio State University, "What is the Federal Reserve System Trying to Do?"

The Chapter elected the following new officers for 1960-61:

President—ROY L. ADAMS
First Vice-President — SAMUEL McGAVRAN
Second Vice-President—DR. MERTON D. OYLER
Secretary-Treasurer—DR. MIKHAIL CONDOIDE

Harrisburg

The speaker at the June 23rd luncheon meeting was James A. McCafferty, Criminologist in the Research and Statistics Branch of the Bureau of Prisons, U.S. Department of Justice. Mr. McCafferty's subject was "Federal Criminal Statistics."

Ray M. Peterson, F.S.A., Vice-President and Associate Actuary of the Equitable Life Assurance Society of the U.S., spoke at the July luncheon on the financing of the Social Security System.

Hawaii

The speaker at the March meeting was Professor Paolo Comba of the University of Hawaii, who discussed "Linear Programming." In April Mr. Wayne Collins, President of the Board of Agriculture and Forestry, spoke about the proposed development of Hawaii's park system.

The Chapter held a joint meeting with the American Society of Civil Engineers at the Fort Shafter Officers Club in May. Mr. Neal Blaisdell, Mayor of Honolulu, and three of his department heads—Mr. Kunimoto, Chief Engineer; Mr. Louis, Director of Planning; and Mr. Maice, Manager of Urban Renewal; talked about the six-year Capital Improvement Program. The meeting was attended by about 130 persons.

A luncheon meeting was held in June at which Mr. Ross Eckler, Deputy Director of the Bureau of the Census, spoke about the I.S.I. meeting in Tokyo and the highlights of the 1960 Census.

University of Illinois

At a recent meeting of the University of Illinois Chapter of the American Statistical Association, the following officers were elected:

President—PROFESSOR THOMAS A. YANCEY, Department of Economics
President-Elect—PROFESSOR COLIN R. BLYTH, Department of Mathematics
Secretary-Treasurer — PROFESSOR HENRY F. KAISER, College of Education

Nebraska

The following officers have been elected for the year beginning September 1, 1960:

President—DR. EDGAR Z. PALMER, Chairman, Department of Business Research, University of Nebraska
Vice President—DR. WILLIAM E. JAYNES, Department of Psychology, University of Omaha
Secretary-Treasurer—DR. CHARLES O. GARDNER, Department of Agronomy, University of Nebraska

Pittsburgh

On April 12, 1960, Dr. Donald S. Leckie, Planning Engineer, Republic Steel Corporation, addressed the chapter on "Application of Regression Analysis to the Construction of an Open Hearth Production." Dr. Leckie based his discussion on an Operations Research analysis for an eight furnace open hearth plant producing low carbon steel ingots. He covered the statistical treatment of the regression models in both linear and quadratic forms, and the solution of the production model for optimum combinations of charge materials for maximizing production with and without a restriction on the availability of hot metal.

On May 24th, Dr. Frederick A. Sorensen, Statistician, U S. Steel Applied Research Laboratories, spoke on "Operation of the Control Chart for Averages." Dr. Sorensen discussed the theory of the control chart for means as a test of homogeneity. He outlined the methods he used to obtain power results for the control chart under certain alternatives to control, and presented some results which compared the control chart and analysis of variance tests.

Officers elected for 1960-1961 were:

President—PHILIP HERMANN, Jones and Laughlin Steel Corp.

Vice-President—JOHN W. WILKINSON, Westinghouse Research Laboratories
Secretary—FREDERICK A. SORENSEN, U. S. Steel Applied Research Laboratories
Treasurer—THOMAS A. ELKINS, Gulf Research and Development Company

Rochester

The annual dinner meeting of the Rochester Chapter was held at the University of Rochester Faculty Club on May 3, 1960. Dinner was followed by a business meeting at which the following officers were elected to serve for 1960-61:

President—DONALD A. WRIGHT, Eastman Kodak Co.
Vice-President—A. LESTER LUSTIK, Rochester Gas and Electric
Secretary-Treasurer—RICHARD ROSETT, University of Rochester

The guest of honor was Morris Hansen who spoke on "Some New Developments in the 1960 Census." The talk was concerned with sources of error in the census and methods for reducing error. Mr. Hansen also discussed new methods of data processing employed by the Census Bureau. During the question period Mr. Hansen answered questions about the 25 percent sample taken in connection with the census.

Sacramento

Mr. Morris Hansen, President of the American Statistical Association and Assistant Director for Statistical Standards of the Bureau of the Census, was guest speaker at the June 22, 1960 meeting.

Mr. Hansen described some of the techniques employed and equipment used in compiling the 1960 Decennial Census. He explained how FOSDIC (film optical sensing device), which was developed by the Census Bureau, was used to put the census data onto microfilm and into the computer and how the computer was programmed to edit, compute, and summarize the data.

Guests present at the meeting included George M. Kuznets, Professor of Agricultural Economics at the University of California (Berkeley).

The newly-elected officers for the 1960-61 term are:

President—EDMOND A. RADSLIFF
Vice-President—STUART N. ADAMS
Treasurer—KEITH S. GRIFFITHS
Secretary—CLARK A. LEE

Saint Louis

William A. Clark, Monsanto Chemical Company, spoke at the June 16th luncheon meeting on "Use of Electronic Computers for Market Research and Management Games." The talk dealt with two topics—a computer program for analyzing the results of a survey, and use of a high speed computer in developing "management games" to provide training in corporate decision-making and planning.

The topic at the luncheon meeting of September 22nd was "Inductive Accounting for Joint-Use Telephone and Electric Poles." The speakers were Estel Mabuce, Union Electric Company, and George Little, Southwestern Bell Telephone Company. Use of statistical sampling methods to reduce the burden of record-keeping for jointly-used utility poles was described.

San Francisco

"Collective Bargaining and the Work Rules Issue" was the subject of the dinner meeting held on June 9th. The speaker was William H. Smith, Executive Vice-President of the Federated Employers of San Francisco.

Morris H. Hansen, Assistant Director of Statistical Standards, U. S. Bureau of the Census, and President of the American Statistical Association, was the speaker at the June 22nd luncheon meeting. Mr. Hansen's subject was "New Developments in the Census."

Southern California

A dinner meeting was held on May 26th at which Dr. Alexander W. Boldyreff, Professor of Engineering at the University of California at Los Angeles and Consultant to the RAND Corporation, Santa Monica, was the guest speaker. Dr. Boldyreff's subject was "Reliability from the System Point of View."

A joint meeting with the Los Angeles Section of the Society for Industrial and Applied Mathematics was held the evening of June 30th. Three speakers dealt with some aspect of the use of computers. Dr. Peter K. Henrici, Associate Professor of Mathematics, U C. L. A., discussed "The Computer as an Experimental Tool in the Study of Round-off Errors"; Dr Michel A. Melkanoff, Assistant Research Physicist, Numerical Analysis Research, Department of Mathematics, U. C. L. A., described "Some Applications of High Speed Computers in Scientific Research"; and Dr. Edgar C. Smith. Jr., Field Manager, University and Research Institute Program, I. B. M. Corporation, spoke on "The Use of Computers in Linguistic Analysis."

M. D. Plotkin, Business and Economic Research Analyst for Sears, Roebuck and Company, discussed the method used in forecasting Sears sales for the year ahead at the July 28th dinner meeting. Mr. Plotkin showed the development of the forecast from the national economic series to the Company retail and mail order monthly sales. A case was made against the extrapolation of current trends as practiced by many companies.

The Southern California Chapter and the Los Angeles Chamber of Commerce jointly sponsored a Census Symposium the afternoon of August 22nd. The principal speaker at the luncheon session was Dr. Conrad Taeuber, Assistant Director of the Bureau of the Census. At the afternoon session Howard G. Brunsman, Chief of the Population Division, spoke on the Population Census; Wayne Daugherty, Chief of the Housing Division, discussed the Housing Census; Harvey Kailin, Chief of the Business Division, described the Census of Business; Irving Rottenberg of the Industry Division dealt with the Census of Manufactures; and William T. Fay, Chief, and Robert C. Klove, Assistant Chief, Geography Division, spoke on Census Geography.

Malcolm B. Catlin, 1902-1960

Malcolm B. Catlin, a vice-president and founder of C.E.I.R., Inc., and a member of the ASA Council representing the Washington metropolitan area and Maryland, died July 21 after a short illness. Born in Bloomfield, N. J., Mr. Catlin received an engineering degree from Rutgers University where he later taught. In 1934, he joined the Works Projects Administration where he became Director of Research and Statistics. During World War II, he was Deputy Director for Redistribution in the War Production Board. He later served as Director of the Budget and Management Division of the United Nations Relief and Reconstruction Agency and as Director of the Housing Economics Division of the Housing and Home Finance Agency. In 1950 Mr. Catlin was awarded a Navy citation for his work as Executive Director of the Navy Materials Review Staff. He also held positions with the Office of Defense Mobilization. In 1954 he left government service to become one of the founders of the Corporation for Economic and Industrial Research, one of the nation's largest independent research and computer services.

James P. George, 1893-1960

Dr. James P. George, Professor of Economics and Applied Statistics at the University of Tennessee, died of a heart attack in Phoenix, Arizona, March 9, 1960. He was a graduate of Iowa State University, received a Master's degree from Cornell and a Doctor's degree in Economics from the University of Illinois. He was a statistician and research economist in Federal agencies for several years. He had taught economics and statistics at Toledo, Arizona State University, Baylor and the University of Tennessee.

NEWS—CONTINUED FROM PAGE 7

Pennsylvania. The purposes of this release are to determine the extent and distribution of manufacturing in suburban and rural geographic places in Pennsylvania and to investigate the adequacy and accuracy of the Bureau's system of geographic classifications, specifically urban and urban fringe areas.

Statistics are presented for each city, borough, and township and for place names and post office addresses located within townships. A series of four maps showing the density of manufacturing employment by municipality is included in the release.

Copies of any of the five above releases may be obtained from the Bureau of Statistics, Department of Internal Affairs, Harrisburg, Pennsylvania.

RECENT FEDERAL PUBLICATIONS

—CONTINUED FROM PAGE 14

ness District Bulletins of the 1958 Census of Business and Construction Statistics, are also available.

The 1960 edition of the *Statistical Abstract of the United States* may be purchased at $3.50 a copy from the Superintendent of Documents, Washington 25, D.C.

Numerical List of Manufactured Products, 1957 Standard Industrial Classification (296 pages) describes the 1958 Census of Manufactures industry and product classifications in terms of the 1957 edition of the Standard Industrial Classification. Copies may be purchased for $1.50 from Superintendent of Documents, Government Printing Office, Washington, D.C.

The Post-Enumeration Survey: 1950, issued as Census Technical Paper No. 4, may be purchased at $1.00 per copy from the Bureau of the Census, Washington 25, D.C.

Reports on Foreign Manpower issued recently include: *Projections of the Population of Rumania, by Age and Sex: 1960-1976* (10¢), *The Soviet Statistical System: Labor Force Recordkeeping and Reporting* (45¢), and *Projections of the Population of the Soviet Zone of Germany and the Soviet Sector of Berlin, by Age and Sex: 1960-1976* (10¢). The first and last may be purchased from the Bureau of the Census, but the report of The Soviet Statistical System is for sale by the Superintendent of Documents.

Bureau of Labor Statistics

Two releases have been issued extending the series of output per man-hour. The releases, *Output per Man-Hour in the Private Economy in 1959* and *Indexes of Output per Man-Hour for Selected Industries, 1939 and 1947-59*, may be obtained from Division of Productivity or Technological Developments, Bureau of Labor Statistics, Washington 25, D.C.

Three new guides, the *Guide to Area Employment Statistics*, the *Guide to State Employment Statistics*, and the *Area Guide to Industry Statistics*, describe data available from appropriate State agencies compiled under the cooperative BLS-State employment statistics program. Copies of the guides are available within the limits of supply from the Bureau of Labor Statistics, Department of Labor, Washington, D.C.

Civil Aeronautics Board

A *Handbook of Airline Statistics* (276 pages) is available for $1.25 from Superintendent of Documents, Government Printing Office, Washington, D.C.

Department of Health, Education, and Welfare

Health, Education and Welfare Indicators, a monthly publication summarizing significant data in both chart and table form, is available at an annual subscription cost of $3.50 (single copies 35¢) from Superintendent of Documents, Government Printing Office, Washington 25, D.C.

Department of the Army

Tabulating Equipment and Army Medical Statistics (202 pages), prepared by the Historical Unit of the U.S. Army Medical Service, may be purchased for $2.00 a copy from Superintendent of Documents, Government Printing Office, Washington 25, D.C.

STATEMENT REQUIRED BY THE ACT OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, JULY 2, 1946 AND JUNE 11, 1960 (74 STAT. 208) SHOWING THE OWNERSHIP, MANAGEMENT, AND CIRCULATION OF **The American Statistician**, published 5 times yearly at Washington, D.C. for October, 1960.

1. The names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, American Statistical Association, 1757 K St. N.W., Wash. 6, D.C.; Editor, Morris Hamburg, 230 Dietrich Hall, U. of Pa., Phila. 4, Pa.; Managing Editor, None; Business Manager, Edgar M. Bisgyer, 1757 K St. N.W., Wash. 6, D.C.

2. The owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual member, must be given.): American Statistical Association, 1757 K St. N.W., Wash. 6, D.C.

3. The known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. Paragraphs 2 and 3 include, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: (This information is required by the act of June 11, 1960 to be included in all statements regardless of frequency of issue.) 8,135

American Statistical Association.
Edgar M. Bisgyer, Business Manager.

Sworn to and subscribed before me this 16th day of Sept., 1960.

Mary P. Windsor,
Notary Public.
(My commission expires April 14, 1964.)

mittee, noted that the study of the Association's publications program began in 1957 and included a questionnaire sent to a large sample of the membership (in the Fall of 1958). The Board and Council, probably at its next meeting, will issue a statement based on the report, as the policy of the Association. After some debate the Board and Council discontinued the arrangement for Liaison Editors to the JOURNAL from the Sections, but emphasized that this action in no way constrained the Sections from taking full interest in the JOURNAL and the publications program in general. It is hoped that the Sections will continue to encourage submission of manuscripts in their areas of interest. Final decision of acceptability of all articles rests, of course, with the Editor.

One of the items discussed at the Board and Council meeting was the financial status of ASA, both for 1960 and projected for 1961. It appears we will end this year with a small addition to surplus. However, ASA does suffer from a lack of funds to carry on certain kinds of professional activities (publishing, placement services, publicity, etc.), and an increase in dues may be necessary, as has been the case in most professional societies. If ASA is to fulfill its role as a society devoted to serving the profession, it would be shortsighted to curtail some needed functions for lack of funds. The office does attempt to collect additional income through advertising, sales, list rentals, etc., but this is limited. It is obvious that statistical methodology and applications are witnessing tremendous expansion and ASA must keep pace.

In a tangential vein, let me mention briefly that a meeting of representatives of a number of statistical societies took place September 16 through 18. The conference was held at Tuxedo, New York (at the Onchiota Conference Center) for the purpose of discussing, in a preliminary manner, ways and means of providing closer cooperation among the societies to the greater benefit of statistics generally. The societies represented were:

American Society for Quality Control
American Statistical Association
Biometric Society (Eastern North American Region and Western North American Region)
Econometric Society
The Institute of Management Sciences
The Institute of Mathematical Statistics
Operations Research Society of America
Society of Actuaries

Also attending were consultants from the American Institute of Biological Sciences and the Conference Board of Mathematical Sciences, for the purpose of giving the representatives the benefit of their experience in joint activities by societies in their respective areas. A fuller report will be made to the membership in due course.

(See also the news items covering this conference and the August Board and Council meeting in this issue.)

Let me welcome two new Chapters to our growing list of local groups. The Board and Council granted charters to the newly organized Chapters in Arizona (centered around Phoenix and Tucson) and Harrisburg, Pa. On September 1, Don Riley, Executive Director of ASA, presented the charter to the Arizona Chapter at a meeting addressed also by the Governor of Arizona, the Honorable Paul Fannin, and by Walter T. Lucking, President of the Arizona Public Service Company. Mr. Riley will also present the Harrisburg Chapter charter at a meeting there this fall.

It was a pleasure to meet many of the Chapter Presidents and Secretaries at the breakfast meeting, held during the Annual Meeting. Their vigor in helping to maintain Chapter activities is vital to the success of your local programs. Why not check with your Chapter officials and see what you can do to help?

BACK ISSUES OF JOURNAL WANTED

The following issues of the JOURNAL OF THE AMERICAN STATISTICAL ASSOCIATION are needed by the national office of ASA. The Association will pay $1.00 for each copy received in its office in good condition. The issues wanted are:

Volume	*Number*	*Month*	*Year*
35	210 Pt. 1	March	1940
36	213	March	1941
42	238	June	1947
42	239	September	1947
48	261	March	1953
48	262	June	1953
50	269	March	1955
51	275	September	1956
53	283	September	1958
54	287	September	1959

Send the issues to the **American Statistical Association, 1757 K Street, N. W., Washington 6, D. C.** Be sure to include your name and address in the package.

TECHNOMETRICS

A Journal of Statistics for the Physical, Chemical and Engineering Sciences

Vol. 2, No. 3 **August, 1960**

Vol. 2, No. 4 **November, 1960**

Technometrics is published quarterly in February, May, August and November. To members of the American Statistical Association and the American Society for Quality Control the annual subscription rate is $6.00. The annual non-member subscription rate is $8.00. Checks should be made payable to *Technometrics* and addressed to *Technometrics*, Post Office Box 587, Benjamin Franklin Station, Washington 4, D. C.